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Six-Hour Day Sought for Pulp and Paper Mills

Liverpool, N. S., Branch of the International Brotherhood of Papermakers Passes Resolution Which Is Being Forwarded to Every Affiliated Branch of the American Federation of Labor—Export of Hydro-Electric Power to the U. S. Is Approved—Case of Price Bros. & Co. Against News Print Institute Is Dismissed

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 10, 1933—From Liverpool, Nova Scotia, where the mill of the Mersey Paper Company is situated, it is reported that the local branch of the International Brotherhood of Paper Makers has passed a resolution for the enforcement of the six-hour day in the pulp and paper industry. The resolution is being forwarded to every affiliated branch of the American Federation of Labor.

The resolution points out that the principle of the six-hour day was adopted by the Brotherhood at their convention in Montreal in 1931 and afterwards approved by every local throughout the continent. The matter of a wage-scale was referred to a special committee appointed at the convention, the resolution says, but this committee has never reported. The local branch of the Brotherhood, accordingly, seeks the adoption of the wage-scale fixed in 1926 and would have the six-hour day paid as if it were a seven-hour day on that scale.

The resolution sets forth that the adoption of the six-hour day would tend largely to relieve present unemployment in the industry and the adoption of the wage-scale would maintain a standard of living for all workers like that of those at present employed.

Approve Power Exports to U. S.

Export to the United States of hydro-electric power produced in the Province of Quebec has been approved during the week by the Quebec Legislative Assembly. The Dominion authorities will now be approached with a view to obtaining necessary authorization before actual export is undertaken. The bill permits the Quebec Lieutenant-Governor-in-Council, which means the executive of the Provincial Government, to permit export of 250,000 hp. of electrical energy per year. It is generally believed that the Dominion authorities will give their permission for export. Answering a question in the House of Commons a few days ago, Premier R. B. Bennett said Quebec's desire to export power had not been officially presented to him.

The action of the Quebec government is generally believed to be to bring some relief to large power producers like the Beauharnois, Shawinigan and Gatineau power corporations which have developments much in excess of immediate or prospective requirements, and whose market for power has been greatly diminished during the depression. These companies also have large interest payments to make on funds borrowed in the United States, and the purchases of New York funds at a premium in order to make these payments is a heavy burden on them, for which the sale of power in the United States would bring relief. Furthermore the export of power would bring needed revenue to the Quebec government, which would charge a royalty of $2 per horse power on power exported.

Officially, however, another reason is given. Hon. L. A. Taschereau, premier of Quebec, told the Legislative Assembly that one of the main objects was "to strike a death blow at the St. Lawrence deep waterways plan. Among the principal proponents of the scheme in the United States, he said, were New York and the New England states. The scheme appealed to them because of the power development that would be undertaken as a result of deepening the river.

If Quebec were to offer those states 250,000 or 300,000 horsepower per year—a quantity he considered "insignificant when the vast resources of the province are taken into consideration"—those states would cease championing the St. Lawrence development and the Assembly "would be doing this province and Canada as a whole a great service."

News Print Trade Case Is Dismissed

Judge A. Stein, in a judgment handed down in the Superior Court at Quebec, dismissed with costs the suit brought by Price Brothers and Company, Limited, against the Newsprint Institute of Canada for $787,162.67, which amount was claimed to be due to the plaintiff under the terms of an agreement entered into November 29, 1928.

The action was directed against the Abitibi Power and Paper Company, Ltd., and the Anglo Canadian Paper Mills, Limited, and the following companies mise-en-cause: Bathurst Power and Paper Company, Ltd., Beaver Wood Fibre Company, Ltd., J. R. Booth, Ltd., E. B. Eddy Company, Ltd., Fort Francis Pulp and Paper Company, Ltd., Great Lakes Paper Company, Ltd., Kenora Paper Mills, Ltd., Lake St. John Power and Paper Company, Ltd., James McLaren Company, Ltd., St. Lawrence Paper Mills Company, Ltd., and Thunder Bay Paper Company, Ltd.

The agreement which formed the basis of the litigation, entered into between the news print manufacturers in East-

(Continued on page 49)

Chicago Paper Market Maintains Firmness

Although Movement of Tonnage Into Consumption Declined Slightly During Week, Improved Sentiment Previously Registered Continues—Return of Beer In Certain States Benefits Paper Board Industry and Creates New Request for Containers

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 10, 1933.—With slightly less tonnage but with plenty of determination the Chicago paper market went through the past week holding gains previously registered and maintaining a firmness despite reduced volume in many instances. All in all Chicago paper houses and manufacturers representatives report that the industry here is well along the road to overcoming the temporary reaction to the rather speedy upturn of a short time ago. This ability to hold gains and to extend firmness into other lines is taken as a comparatively good sign by local observers.

The paper board market continued its upturn, making every effort to benefit from demand brought about by the return of beer in certain states and from increased demand created through new uses—including jig saw puzzles. The fine paper market fell off slightly in tonnage but a strengthening was expected to go further, particularly in sulphite bond, as New York held a meeting similar to the one held in Chicago ten days ago. Books and covers remained about the same. Ground wood representatives said that the improvement was still "mostly mental" but that there was plenty of talk about firming up in the market itself. Krafts held to gains and conditions were even slightly improved as to volume during the week.

State Sales Tax Rulings

The industry is still puzzling itself over the regulations of the state sales tax and still awaits word from Springfield defining the "ultimate consumer" with some degree of clarity. In the meantime, to be safe, many are collecting the tax and promising refunds in case they are not liable for the three per cent tax. The PAPER TRADE JOURNAL is in possession of a report issued by an Illinois association which covers a ruling affecting paper jobbers and printers. The report indicates that in the case where the jobber or manufacturer sells direct to the printer the tax is not collected in as much as the printed material is used as a process or a step in the sale of an article which is eventually taxed when it reaches the ultimate consumer. If the paper was taxed and the finished article taxed, i. e., the article sold through the advertising medium, this would result in double taxation and thus be unconstitutional. Many, however, are playing safe and collecting the tax. The printers, in particular, are confused as to the ruling or absence of ruling. Definite regulations are expected to come from the State Department of Finance this week.

Envelope Manufacturers Meet

The Envelope Manufacturers Association was finally able to hold its regular meeting this week after having had to postpone it in March because of the bank holiday. Under the guidance of Charles R. Stevenson, secretary and treasurer, the association held its convention on April 7 and 8 at the Congress Hotel. The regular sessions were preceded by a meeting of the Western group held on April 6. A number of out of town paper executives were present and also many local representatives of mills. A dinner, held on the evening of April 7, was attended by equipment executives, mills and envelope manufacturers themselves. Market conditions and postal rates vied, according to reports, in attracting the interest of the industry. Phil Howard, manager of the Paper Foundation, spoke before the manufacturers on April 8, making a plea for their participation in the Century of Progress Exposition.

Waste Material Dealers Convention

The annual convention of the National Association of Waste Material Dealers, scheduled for Chicago in March and postponed because of the bank holiday, will probably not be held until October, according to word obtained by this correspondent from L. J. Messinger, chairman of the convention committee of the Waste Material Dealers Association. Mr. Messinger said that the association did not feel that it would be appropriate to schedule the meeting in May, just prior to the opening of the Century of Progress Exposition and that the summer months, for obvious reasons, were more or less out of question. Accordingly, October has been tentatively selected for the three-day program and the presence of the Century of Progress Exposition will be used as an added attraction to get waste material dealers into the city.

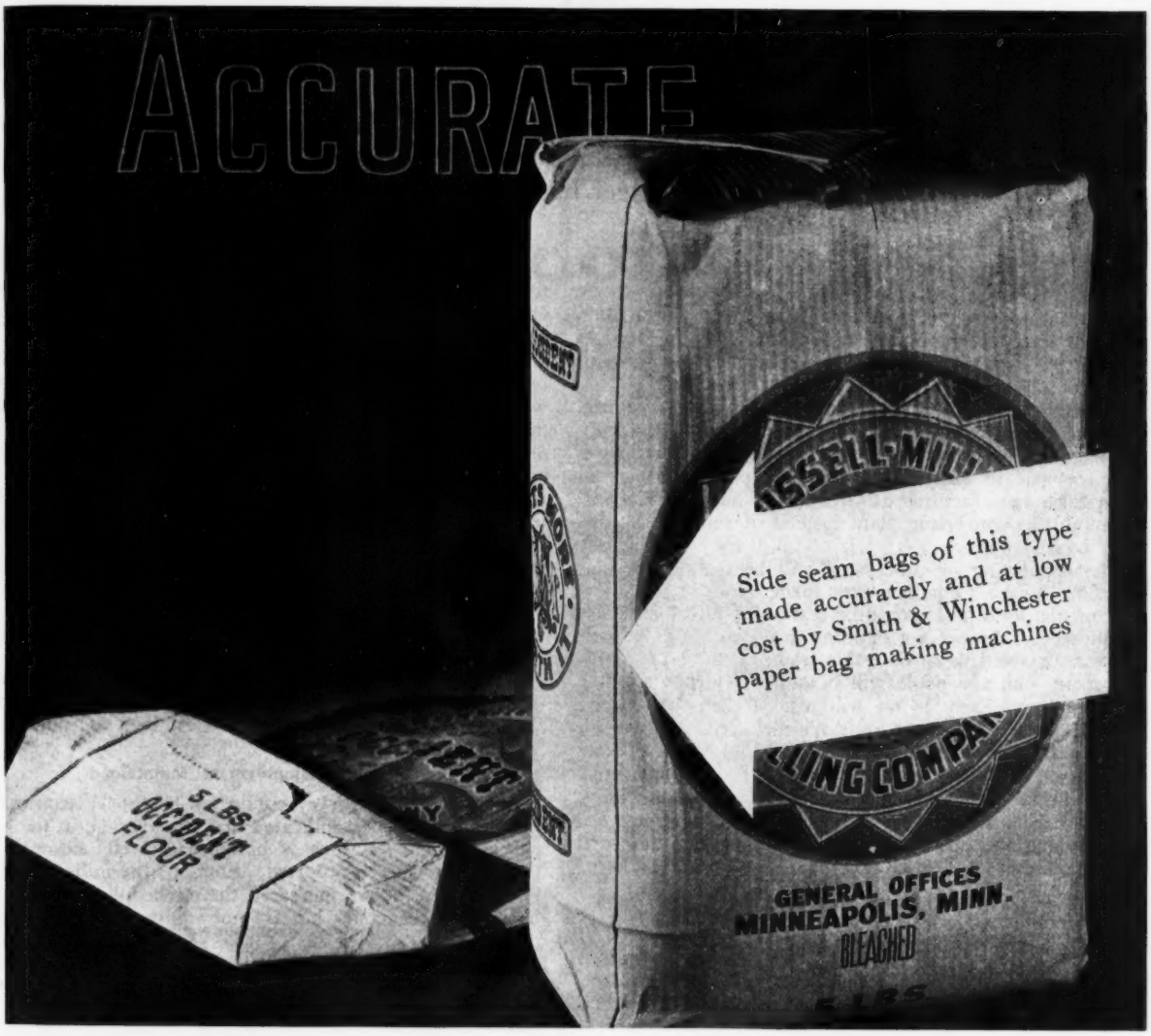
Chicago Paper Association to Meet

The Chicago Paper Association will hold a regular meeting Tuesday evening, April 11. M. A. McNulty, vice-president in charge of the industrial division of the association, will be in charge of the session, which will undoubtedly be devoted to a further discussion of the application of the state sales tax, to market conditions and to the report on credit activities and the interchange of credit information which is now being considered by the Association under the direction of a committee headed by Peter P. Dunne.

Paper Stock Fumigation Bill

Chicago waste paper merchants are deeply concerned over the probable passage in the Illinois Legislature of Senate Bill No. 391, an act "in relation to the licensing of persons engaged in the business of handling waste material for shipment or resale." The bill would provide the following, if passed: Thirty days after the act goes into effect and yearly thereafter every person engaged in the business of collecting or buying for shipment or resale paper, etc., from streets, highways, alleys, hospitals, hotels, and other public and private buildings shall first obtain a license. Every person obtaining the license will be called upon to provide himself with a suitable mechanical sterilizing machine for fumigation purposes. The license fee, payable upon application, is to be $10.00 and the posting of a surety bond with the Department of Public Health to guarantee compliance with the provisions of the act.

Failure to obtain license or violation of any of the provisions of the act will be treated as a misdemeanor upon conviction of which a fine of not less than $25.00 nor more than $500.00 or imprisonment for a period of not less than ten days nor more than six months, or both, will be charged. The bill has been referred to the Senate Committee on License and Miscellany. The cost of the sterilization equipment, the payment of the license and posting of the bond are items which waste material dealers will have to consider in the event that the bill passes.



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PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

Northern Paper Mills Lease Plant In Toronto

Green Bay Manufacturers to Operate Converting Unit in Anticipation of Developing Large Canadian Market for Northern Tissues and Other Products—Profit from Operations Last Year Reported by Badger Paper Mills, Inc., of Peshtigo

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 10, 1933.—In anticipation of developing a large Canadian market for Northern tissue and other products, the Northern Paper Mills, Green Bay, Wis., has leased a small plant at Toronto to be operated as a converting unit. Arrangements were completed through the Toronto Industrial Commission last week.

"The investment is a small one," said W. P. Wagner, president of the company. "We have found it decidedly advantageous to process or convert some of our paper there for sale in that territory. This paper will, as in the past, be manufactured at Green Bay, but the rolls will be sent to this converting plant instead of sending the finished, boxed product.

"The converting or processing will be done there and shipments in the Canadian area made from there. The effect on the local mill should be scarcely noticeable except for shipping. We are not building in Canada. The available plant enabled us to take this trade advantage and the investment which is made will be almost entirely in such processing machinery as we will need. Plans are not in the final form as yet and it is not believed that any of our men from here will be transferred to the Canadian plant except perhaps at the very start a few of them may install Northern methods and train mill men in our ways.

"H. W. Sherman and G. C. Wilster are now engaged in overseeing the installation of machinery, but they will not remain there. The labor will be entirely Canadian."

Badger Paper Mills Report

Badger Paper Mills, Inc., of Peshtigo, Wis., was one of the Wisconsin mills able to show a profit from operations last year. The annual statement issued by E. A. Meyer, president and general manager, shows a net profit for 1932 of $1,573, after depreciation, interest, income taxes and all other charges. This compares with $100,485 in 1931.

Mr. Meyer declares that operating economies have been effected in all departments, but drastic recession in retail paper prices resulted in the severe decrease in profits.

Regular quarterly cash dividends at the rate of 6 per cent a year were paid on preferred stock in 1932, and aggregated $42,141.

The balance sheet shows current assets December 31 amounting to $593,472, compared with current and accrued liabilities of $91,333, a ratio of 6.5 to 1. Of the assets, cash comprised $70,395, net receivables $124,708, and inventories $398,368. Earned surplus was $157,692.

Menasha Mill Rumors Denied

Reports current that the Menasha Paper Mill Corporation, Menasha, Wis., had sold its plant and property have been denied by officials of the company. The mill, a straw board plant, has not been in operation for several months. Negotiations were understood to have been in progress and this fact was not denied by those close to the situation. Developments of a definite nature with regard to the disposition of the mill are expected in a short time.

Wisconsin's Reforestation Plans

Seeding of 100,000 acres of federal forests in Wisconsin, Minnesota and Michigan with Norway pine during the next year is contemplated by E. W. Tinker, Milwaukee, Wis., regional U. S. forester, in carrying out the government's plan for regimentation of unemployed men in forest camps. Nurseries in the three states, including a large one at Rhinelander, Wis., will be planted to capacity. It is estimated that 70,000,000 seedlings will have to be set out to take care of the planting program. Thirty camps will be established immediately in the three states, with 200 men in each, or a total of 6,000 placed at work this spring on federal projects. Only four of these will be in Wisconsin, two in the Flambeau district, and one each in the Argonne and Moquah districts, because of the fact that this state has only 235,000 acres of U. S. forests out of the total of 2,000,000 in the three states.

In addition to the federal program, the Wisconsin Conservation Commission is busy with authorities at Washington seeking a share of the emergency appropriation to carry on additional reforestation on state projects. The state hopes to have 25,000 men working on planting, road building, fire protection work and other activities designed to place the wood supplying areas in the best of condition as a means of guaranteeing a future timber and pulp wood source.

Paper Mill Employment Maintained

An employment survey conducted by the Wisconsin Industrial Commission indicates that the average in the pulp and paper mill sections is holding up well, although no increases have been reported. Some of the mills operating on short weeks have increased their schedules to take care of increased demands, but are not adding men to take care of the operating gains.

One of the large companies reports that its orders practically exceed capacity, but that the low prices of the present market preclude any possibility of profit. It is estimated that even a slight upturn will place a number of mills in a position to show good earnings, in view of the economies effected under the pressure of the bottom market.

Joseph Doerfler Honored

Joseph Doerfler, manager of the Kimberly-Clark Corporation's mill at Kimberly, Wis., has been elected president of the Outagamie County Taxpayers Alliance. He also is president of the village of Kimberly. The organization is working to effect economies in local governmental costs.

Midwest Paper Sales Changes

Russell Lebeau, formerly with the Midwest Paper Sales, Limited, at Calgary, Alberta, has recently been promoted to the position of western sales manager, with headquarters at Winnipeg, Manitoba, and will leave his present position as Regina manager shortly. His appointment follows the death of Herbert B. Kirby, at Winnipeg and he will be succeeded at Regina by Earl Filer, of the Edmonton office of the company, who has now taken over his new duties.

Mr. Lebeau was with the Calgary office for more than four years, and is well known there, having lived in the city for eleven years. He served during the war with the Royal Flying Corps and holds the Distinguished Flying Cross.

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Activities of Ontario Paper Manufacturers

Sun-Tested Wall Papers, Ltd., Lease Former Dodge Plant In Toronto—Will Be Equipped and Operated As Wall Paper Factory, With Production Starting Shortly—Sole Right to Manufacture United Wall Paper Patterns Purchased

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 10, 1933.—Another large new industry for Toronto, described as one of the most important additions in recent years to the city's industrial growth, was announced this week by the Toronto Industrial Commission. The greater portion of building No. 6 of the former Dodge plant on upper Dufferin street is being leased and is to be equipped and operated as a wall paper factory, with production to start very shortly.

Sun-Tested Wall Papers, Ltd., recently incorporated, will operate the new industry. The company has purchased the sole rights to manufacture and sell in Canada the patterns of the United Wall Paper Factories, Inc., an $8,000,000 United States concern, with mills at Jersey City, N. J., Hudson Falls, N. Y., and York, Pa., and Chicago and Joliet in Illinois.

Establishment of the new industry will result, it is stated, in the consumption of large quantities of Canadian-made papers and other materials to the extent of about ninety per cent of the finished product.

Directorate of New Concern

The directorate of the new concern is composed of Herbert C. Jarvis, long identified with the wall paper industry in Canada, president and general manager; Robert A. Jarvis, vice-president; Norman S. Jarvis and Donald Guthrie, all of Toronto, and representing the United Wall Paper Factories, Inc., W. A. Huppuch, chairman of the board of that company; Albert R. Palmer, its president and Albert B. Griffin, vice-president.

Hydro Takes Over Abitibi Power

Title in the Ontario Power Service Corporation, subsidiary of the Abitibi Power and Paper Company, which controls the Abitibi Canyon hydro-electric development, passed to the Ontario Hydro-Electric Power Commission this week with the formal acceptance of the latter's $14,000,000 bid for the first mortgage bonds of the bankrupt organization.

The proceedings, which bring to a close the deal by the Ontario Government through Hydro for the $20,000,000 bond issue, were heard at Osgoode Hall by the Master of the Supreme Court. Hydro's offer was the only one received and as the first mortgage bonds control the property, the title now is in the hands of the Hydro Commission.

The bid of $14,000,000 was merely a formality to close the legal proceedings, started by the Ontario Government when it took over the $20,000,000 issue with Government-guaranteed Hydro debentures in exchange. The Montreal Trust Company was a party in the action, being trustees for the bondholders. No cash passes in the transaction, as Hydro merely turns over its own bonds on the pro rata basis, for those of the Ontario Power Service Corporation.

Great Lakes Paper Issues Report

A report on operations from July 13, 1931, the date of commencement of receivership, to December 31, 1932, has just been issued by the Bondholders' Protective Committee of the Great Lakes Paper Company, Ltd., and this shows operating profit of $287,767. General and administrative expenses totalled $209,783, which left a profit of $78,030. This total was increased to $330,646 by the addition of $16,623 interest earned and $235,994 exchange received. Out of this a sum of $75,000 was reserved for general contingencies and $42,325 applied in adjusting pulpwood inventory to market value, leaving a balance of $213,321.

The balance sheet shows surplus of current assets over current liabilities at December 31 of $1,022,220, as compared with $1,071,984 at the end of June, 1932. Total current assets of $1,366,691 compare with current liabilities of $344,471.

The committee points out that contingent liabilities in respect to commissions in dispute claimed by the Minnesota and Ontario Paper Company, receivers, have been eliminated from the balance sheet, while the reserves for inventories have been applied in writing down the book value of inventories.

Big Pulpwood Loss in Ontario

Bush fires in Ontario last year laid waste 679,021 acres of pulp, timber and other territory, according to figures revealed in the Legislature this week. It was indicated that of the 2,073 fires which contributed to this acreage devastation, 323 were caused by settlers, 589 by campers, 55 by railways, 218 by lightning, 28 by logging operations, 5 by mining operations, 279 by smokers, 26 by road construction, and 42 by miscellaneous causes. A total of 168 were classed "of unknown origin" and 340 were laid directly at the door of incendiarism.

Vigorous protest was voiced against the Government's announced intention to reduce its forest fire patrol appropriation again. Much of the loss caused by fire last year, it was maintained, was due to the reduced expenditure on suppression and detection programs. To continue the reduction in 1933 would be false economy, it was contended.

Receiver Reports on M. and O. Paper Co.

According to a report just issued by the receivers of the Minnesota and Ontario Paper Company, the tendency towards lower prices in the kraft market late in 1932, caused a study of the question of continuing in this field. The decision was in favor of remaining and more recently some evidence of stiffening of prices has been shown. The general condition of the lumber market was still unsatisfactory. The company's Finland plant for the manufacture of insulite was closed down early in October last but is now expected to reopen in May.

The report for 1932 shows $2,247,221 of gross profits but these were more than offset by selling, receivers', administration and general expenses of $2,425,947. Other income of $282,638 left net income before charges of $103,912. Offsetting this, in turn, was $636,576 of interest and an adjustment for inventory loss of $312,315, leaving a deficit for the year of $532,664. Including interest on funded debt accrued and not paid of $2,961,350, other interest accrued and not paid of $520,527 and depreciation of $839,807 for the year, final results showed a net deficit of $4,686,508. Current assets amounted to $8,469,403 with current liabilities of $15,288,595, leaving deficit in working capital of $6,759,192.

Philadelphia Paper Market Continues Buoyant

Distributors of Various Standard Grades of Paper Report Satisfactory Gains in Volume—Book Paper, Wrapping Paper, and Gummed Tape Quotations Firmer—News and Chip Board Prices Advance Slightly—Paper Stock In Better Request

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 10, 1933.—Optimism made further advances during the week in its long continued struggle with pessimism—indeed the best gain it has made this year. The pessimism that has to be overcome arises not so much from conditions as they are today but from the memories of the last year or more, when apparent improvements turned out to be merely trenchant. When an analysis of the attitude of those who are still doubtful is made, it was found to be based not on the experiences of the last week or two, but on the heritage of preceding months. An attempt was made this week in a disinterested manner to ascertain the real opinion of the trade, and it can truthfully be said with no more than one exception—a representative of a firm specializing in envelopes—every jobber reported some gain during March in excess of merely the seasonal one; a majority of them characterized the business of the past week as the best enjoyed this year.

A typical example will illustrate, that of the Garrett-Buchanan Company, which reports an increase of 14.8 per cent in the gross volume of March business over that of February, and approximately the same over that of January, the first week of April slightly exceeding this amount with prospects of additional increase during the month. Reports from other jobbing houses roughly approximated this one, although the number of those which did not equal this record was considerably in excess of the few which slightly surpassed it.

It is, of course, a known fact that on the C. O. D. lists of the jobbing houses there still are an exceedingly large proportion of the printing trade of the city. Business from those on the C. O. D. lists has not shown any increase, all the gain having come from the substantial firms with solid credit rating. And from these firms there have come to the jobbers nothing but good natured approval of the recent stiffening and slight advance of prices which have gone into effect. These firms find great satisfaction in the fact that the shading of prices, merely to secure an order, is virtually over and that with the rigid adherence to the C. O. D. classification of many competitors, the unfair competition which they were enabled to give is virtually over too.

No. 2 enamel book made a 5 to 10 per cent advance during the week, and there were also slight increases in kraft and Manila wrapping with a 10 to 15 per cent increase in gummed tape, a slight advance in news and chip board and in No. 2 machine finished and book papers. The jobbers are of opinion that in the near future some advance in cheap cardboard and index cardboard may be announced.

Paper Trade Association to Meet

The paper stock dealers shared in the improved tone which the week developed, and because of greater activity in demand and the virtually complete cleanup of the market, it is now possible to secure slightly better prices in solid ledger stock, in heavy and light books, in commons and in overissues and old newspapers. Warehouses of the paper stock dealers are now cleaned up as they have not been since last Fall, and there is apparently no accumulation.

Since with no more than two possible exceptions, all the jobbers are members in the Paper Trade Association of Philadelphia, the trade is looking forward with more than usual interest to the Association's meeting which will be held on Wednesday of this week. A call for the meeting indicated that special consideration would be given to recent advances, and possible future ones in low priced and sulphite book papers; that an important report on the matter of direct selling would be made by the special committee, which has been considering the matter, under the chairmanship of Allen E. Whiting, and that good news was anticipated as a result of the conference of mill representatives in New York last week.

Packing Plant Taken Over

Announcement was made during the week that the paper stock and packing plant of the Hinde & Dauch Paper Company, maintained at Water and South streets for the purpose of providing raw material for the plant of the Hinde and Dauch plant at Gloucester, N. J., had been taken over by the Gloucester Paper Stock Company, a subsidiary of Charles A. Mastronardi, Inc., 51 Roosevelt street, New York. The deal involves the taking over of the 4-story packing and cleaning plant at Water and South streets, containing approximately 50,000 square feet of floor area and equipped with elevator and lowerator for handling of stock between the floors, garage, sorting belt, three large hydraulic baling presses, a rotary dumper, together with seven motor trucks and other equipment.

A. Kenneth Brigy, for the last seventeen years, has been manager of this Philadelphia packing plant for the Hinde & Dauch Paper Company, and he will continue as manager of the new concern. In a statement to your representative, he said: "It is our purpose to continue our relationship with the Philadelphia paper stock dealers in the future as in the past. Until the business was taken over by Mr. Mastronardi we bought exclusively for the Hinde & Dauch Company. This concern will, of course, be first in our consideration in the future, but we shall make shipments to other mills as their requirements arise." The Philadelphia plant with its capacity of forty tons a day was one of the main sources of supply of the Hinde & Dauch Company, which consumes more than one hundred tons of waste paper daily.

Penn Paper & Stock Co. Improvements

The Penn Paper and Stock Company, one of whose plants was recently completely destroyed by fire, is engaged in making improvements in its warehouse on New street abutting the destroyed Front street plant, and is installing, after repairing and renovation, the three presses damaged in the fire. Meanwhile, the company is carrying on business from its headquarters at 240 North Delaware avenue.

Puget Sound Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

EVERETT, Wash., April 8, 1933.—The Puget Sound Pulp and Timber Company here, elected officers and directors at their annual stockholders' meeting held recently. Ossian Anderson was renamed president and P. F. Knight, first vice-president, George Gunn, Jr., is second vice-president and H. M. Robbins, secretary.

Use of Latex in the Beater*

By A. R. Melker[1]

Having been asked to talk on Latex as used by my connections, I first feel it proper to describe Latex, which is a liquid that comes from the rubber tree. In color and consistency it is that of milk. Latex is not the sap of the rubber tree but comes from the middle layer of the bark and flows upward from the root. When drawn from the tree about 1 per cent ammonia is added which acts as a preservative. The principal producer is the United States Rubber Company which has large plantations in Sumatra. Shipments are made in tanks of tramp steamers and on arrival here is distributed in steel drums of tank cars.

Under patents of the United States Rubber Company covering the application of Latex in the beater, it is now being used by the Latex Fiber Industries, Inc., Beaver Falls, N. Y., which is a subsidiary of both the United States Rubber Company and the J. P. Lewis Company, and is also used by the J. P. Lewis Company, Beaver Falls, N. Y. in their other mills.

Latex was first applied and successfully used in the manufacture of fiber stock, suitable for the shoe, automotive and artificial leather industries. Various percentages of Latex mixed in the beater with different kinds of stocks, such as rag stock, sulphate or sulphite pulps, will result in special base stocks for different uses.

It has been found by actual tests that the Latex helps to give a higher bursting and tensile strength, also a higher initial tear and gives the stock unusual folding endurance and unusual stay put embossing qualities. It also gives a higher wet strength, more flexibility, greater density and uniformity. The base stock also is water resistant and the surface will withstand abrasion. While the stock has stretching or drawing qualities, making it suitable for crimping, etc., it has a tendency of causing the stock to lay flat. The records and tests indicate that the ageing qualities of stock with Latex are good and have a tendency of improving.

A Latex content sheet does not affect the use of adhesives, neither does it give an odor or taste. It does not prevent coloring of material to desired effects.

The use of Latex in cover stocks improves the printing qualities and produces a better surface, eliminating fuzz or paper dusting and results in less ink consumption. Stock with Latex will also cut smooth and clean.

In order to more thoroughly cover the subject, I think it would be best to answer questions which you may have in your mind and at the same time I will pass around samples of various stocks in the plain stated, coated, embossed and made into various interesting articles.

* Presented at a meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, Hotel Roosevelt, New York, March 27.

[1] A. R. Melker Co., New York.

Titanium Pigment Company Joins TAPPI

The development of titanium is a story of research. A leader in this field is the Titanium Pigment Company, New York, which has recently become a member of the Technical Association of the Pulp and Paper Industry.

Titanium was discovered in Cornwall, England, by William Gregor in 1791 and identified and named by Claproth in Austria in 1795. The development in America dates back only to about 1850, when titanium ores from the Adirondacks were first smelted. The first ventures along this line were found to be uneconomical, but in 1870 Dr. A. J. Rossi, a French chemist, improved the smelting process for the McIntyre Iron Company in Buffalo.

In 1908 as a result of many years of research Dr. Rossi succeeded in separating impure titanium oxide and demonstrated its value as a paint pigment because of its great opacity contributing property.

In 1916 the Titanium Pigment Company was incorporated with William F. Meredith as president. Mr. Meredith was also a partner in the investment house of William T. Meredith, Inc., in New York City. The building of a factory was started but due to the Governmental restrictions imposed relative to the distribution of power during the war period, the operation of this commercial unit was delayed until 1918 when the commercial production of titanium pigments was begun. At the start this production was limited to Titanox-B (barium base).

In 1920 the National Lead Company purchased a substantial interest in the company. So rapid was the development of uses for titanium oxide that in 1922 the company found it necessary to make importations from Europe to meet the domestic demand.

In 1925 the Niagara Falls plant began producing Titanox-C (calcium base) which is used largely as a pigment for flat wall paints and also pure titanium oxide. The plant at Niagara Falls soon became inadequate in capacity and a new, large plant was built in St. Louis to meet the growing demand.

Mr. I. D. Hagar, Eastern Sales Manager, and Mr. D. W. Edgerly, Western Sales Manager, are devoting much time to the paper industry.

The Titanium Pigment Company makes two different types of pigments to improve the color, brightness, opacity and texture of paper. Titanox-B (barium base) contains 25 per cent titanium oxide precipitated and coalesced with blanc fixe. The other product, pure titanium oxide, has the highest index of refraction of any commercially available white pigment.

A paper development laboratory is maintained under the direction of the sales department. The development work and technical cooperation with the paper mills is carried on under the supervision of Mr. Arthur A. Coffin, formerly research chemist for the West Virginia Pulp and Paper Company.

In direct contact with the paper mills are the following: Le Roy Church in New England; L. A. Melsheimer in Metropolitan New York; G. W. Corddey in New York State; Wyatt Schoonmaker in the Southeast; K. W. Erickson in Chicago; and R. S. Perry in Cleveland.

The Titanium Pigment Company is represented in the Technical Association of the Pulp and Paper Industry by Mr. I. D. Hagar.

Norwegian Market Unchanged

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1933.—The Norwegian paper and pulp market seems practically unchanged, as far as demand is concerned according to reports reaching the Department of Commerce; perhaps a little weaker than at the same period of last year. This is especially true with reference to news print, in which consumption seems to be declining steadily. However, Norwegian mills have disposed of approximately 60 per cent of their output for the current year and have been somewhat encouraged also by the recent removal of the Spanish embargo on news print.

Obituary

Joseph H. McCormick

Joseph H. McCormick, Supervisor for the Town of Pelham, Westchester County, died at the Lawrence Hospital, Bronxville, N. Y., on April 6, after an illness of three weeks. Mr. McCormick was 68 years old, and lived at 133 Elderwood avenue, Pelham, N. Y. Born in the cradle of politicians, the lower West Side of Manhattan, Mr. McCormick was always keenly interested in politics, and was always a Democrat in national affairs. When he moved to Pelham, he took a prominent and important part in local politics, but maintained a non-partisan attitude. His interest was rewarded in 1931 by the nomination for Supervisor on the Democratic ticket, and although Pelham is normally Republican, he was elected by a large vote. On the Board of Supervisors, he was active in Tax Equalization and Legislation affairs, and although on the Board for a period of a little more than a year, he made a splendid record.

Mr. McCormick was associated with the paper trade for more than fifty years, and was universally known and respected in it. As a boy, he started as a clerk with one of the old houses, Butterworth & Smalley. He afterwards became a pulp salesman, which necessitated his visiting all paper mills in the country, and through which he built up the wide circle of friends, all of whom he retained until his death.

He was successively general manager of the John A. Manning Company, Troy, N. Y.; vice-president of Henry Lindenmyer & Son, New York; president of the American Paper Mills Company; vice-president of Butler Paper Corporation, and, at the time of his death, vice-president of Herman Scott Chalfant, Inc. His acquaintance with the paper business made his advice much sought, and his reputation for honor and fairness won him the position of vice-chairman of the American Arbitration Association, where he officiated in many important cases. He is survived by his widow and one son, Major E. G. McCormick, U. S. A.

Boyd C. Cortright

BATTLE CREEK, Mich., April 8, 1933.—Boyd C. Cortright, aged 70, one of the founders of the Cortright Paper Company, and for more than fifteen years its general manager, passed away April 1 at his home, 63 Calhoun street, following a year's illness. Mr. Cortright had not been active in the company for more than three years, disposing of his interests to the Crown Paper and Bag Company in December, 1929, when he retired.

Mr. Cortright came to Battle Creek in June, 1909, from Hickory Corners and with James G. Redner established the Redner & Cortright Paper Company. For the first three years, Mr. Cortright served as treasurer and also travelled on the road considerably for his concern. In 1914, Mr. Redner withdrew from active connection with the concern to assume management of the Battle Creek Bread Wrapper Company and in 1918 sold his interest in the paper company.

In 1913 the firm incorporated as Redner & Cortright, and later as the Cortright Paper Company when Mr. Redner retired. Mr. Cortright became president upon the retirement of his partner. Mr. Cortright was succeeded a short time later as president by his brother-in-law, William Elliott, of Hickory Corners, but remained as treasurer of the company during the entire 21 years in which he was associated with it. He also served as general manager from 1914 until the Cortright Paper Company became a division of the Crown Paper and Bag Company in 1929. The plant was located for 21 years at 88 South Jefferson avenue, now Capital avenue, southwest, before being moved to its present location at 58 Barney street.

Boyd C. Cortright was born August 24, 1862, at Hazelton, Pa., and came to Michigan with his parents at the age of six, settling near Hickory Corners. For many years, he operated a general retail store at Hickory Corners, selling this in 1908, one year before he came to Battle Creek to make his home. He was a member of Council No. 253, United Commercial Travellers, and of the Hickory Corners Lodge, F. and A. M. Several years ago he was made a life member of the Masonic Lodge, after holding membership for more than forty years.

Mr. Cortright is survived by his widow, Mrs. Ada Cortright; a sister, Mrs. William Elliott, of Hickory Corners; two nephews, George Elliott, of Detroit, and Barton Cortright, of Kalamazoo; and several cousins living in the East.

Frank Theiler

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 10, 1933.—Frank Theiler, one of the founders of the former Tomahawk Power and Pulp Company, died last week at Tomahawk, Wis., after an illness of several months. He was Mayor of the city of Tomahawk. In 1930 he leased the pulp mill of the defunct Tomahawk Pulp and Paper Company, and operated it until last fall. The mill produced no profit, but accomplished his objective of giving employment to a number of men.

Mr. Theiler was a timber operator for many years, owning large tracts in Wisconsin and Michigan from which he marketed large quantities of pulpwood. He was 50 years old, and prominent in the business and civic life of his community. He is survived by his widow and six children.

Frank T. Connor

Frank T. Conner, for many years a dealer in paper stock at 386 Pearl street, New York, died suddenly on Wednesday, April 5, of a heart attack in his office. He was 70 years old and resided at 1848 New York avenue, Brooklyn.

Mr. Conner was born in Manhattan and was a son of the late William C. Conner, a former sheriff of New York County.

His widow, Mrs. Jessie Conner, and a son, Sherwood C. Conner, survive him.

J. A. MacArthur

[FROM OUR REGULAR CORRESPONDENT]

ILION, N. Y., April 10, 1933.—J. A. MacArthur, for many years identified with mills of the International Paper Company, in Northern New York, died last week at his home here following a brief illness. He was 80 years old. During his connection with the company he served as an engineer but due to advanced age, it became necessary for him to retire several years ago. His wife and several children survive.

Andrew C. Pearson

[FROM OUR REGULAR CORRESPONDENT]

NEWTON FALLS, N. Y., April 10, 1933.—Andrew C. Pearson, vice-president of the Newton Falls Paper Company, died during the week at his home following a paralytic stroke. His death came suddenly, as he was able to perform his duties until seized with a heart attack at his office a few days ago. He was born at Coffeyville, Kansas, and educated at Northwestern University.

At the time of his death he was president of the National Publishers Association, national chairman of the American Publishers Conference, a director of the Merchants Association of New York City, president of the past directors association of the United States Chamber of Commerce and a trustee of Baker University.

The survivors include his wife, three sons, two daughters, a brother and a sister.

Mead Corp. Reports Loss

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, April 10, 1933.—The Mead Corporation and subsidiaries reported for the year ended January 1, 1933, after all charges depreciation and taxes, a consolidated net loss of $713,279.

This compares with a consolidated net profit, after charges of $439,836, equal, after dividends on 35,859 preferred shares, to 38 cents a share on 588,644 no par common shares, for the year ended January 2, 1933.

Current assets as of January 1, 1933, inculding cash of $784,335, were $4,218,374 and current liabilities $423,193, compared with current assets of $5,140,210 and current liabilities of $633,189 on Jan. 3, 1932. Cash was nearly two times enough to meet current obligations of the corporation.

The regular sinking fund payments were met and depreciation charged on the usual basis, in the amount of $976,178. No provision was made in the balance sheet for loss which may be sustained in the liquidation of the company's claims of $143,560 against closed banks and the accrued undeclared and unpaid preferred stock dividends from June 1, 1932.

In a separate pamphlet, the Mead Corporation issued the balance sheet of one of its subsidiaries, Dill & Collins, Inc., Philadelphia, which on December 5, 1932, the Mead Corporation acquired 80 per cent of the common capital stock, class B. Current assets as of December 31, 1932, were $508,647 and current liabilities $64,744. Dill & Collins, Inc., manufactures the highest grades of book and coated papers.

George H. Mead, president, stated that the greatest influence in the company's loss last year was the depressing of prices of the several products manufactured by the Mead Corporation, caused by competition from foreign countries with depreciated currencies. "The government must provide some means of equalizing the exchange of moneys between the United States and the rest of the world, or else prohibit the importation of foreign products if our institutions in general are to survive the present very serious competitive situation," he said.

The market supplied by the corporation have been continually over-produced, and with a great curtailment in consumption of all paper goods, as well as the chemical products of the company, Mead Corporation operations have been carried on at a greatly reduced rate, and resulting prices for our various products have readily declined throughout the past year. It is of importance to note that this decline seems in the recent months to have come to an end and in some of the corporation's sales an advancing price tendency is now evident.

"During the past year further substantial reductions have been made in both salaries and wages in all departments, and every other possible economy has been effected. The working capital of the Mead Corporation has been well maintained during the past year, and the cash position remains strong, due particularly to the reduction in inventories, most rigid economy in purchasing new materials."

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 10, 1933.—Carter, Rice & Co., Corp., exclusive agent in Massachusetts and most of New England for the Strathmore Paper Company, Mittineague, Mass., is making a distribution of dealer display of Strathmore weddings among engravers. The display, which is most attractive, consists of a large centerpiece, a picture of a bride, and two side pieces containing specimens of the more popular wedding items. This material may be supplemented in the dealer's window according to his own taste. which may include other items or samples of his own work.

Louis De Jonge & Co., of which Carter, Rice & Co. is a representative, has discontinued the manufacture of Art Gloss, Deco Gloss and Deco Mat to make room for new papers which the De Jonge company plans to bring out in the near future. These discontinued lines are now being offered through the De Jonge agents at considerably reduced prices in order to move the stock as rapidly as possible.

Parker-Young Company, Lincoln, N. H., has appointed Rutter & McNaught agent for Franconia Bond, a watermarked sheet in white and colors.

J. P. Lewis Company, Inc., Beaver Falls, N. Y., has appointed Rutter & McNaught agent for its Lewistrong Cover, which has the latex content. This cover is made in eight attractive colors, three sizes and two weights.

Knight, Allen & Clark, Inc., has become agent and distributor of Millers Falls Onion Skin, manufactured by Millers Falls (Mass.) Paper Company.

Richard F. Piper, of Baird & Bartlett Company, and Mrs. Piper, have been receiving congratulations on the birth of a second daughter, born March 25.

W. L. McAllister, sales manager of the Waterfalls Paper Mills, Mechanic Falls, Me., with offices in New York; and W. T. Libby, of the Claremont Paper Company, Claremont, N. H., were in town recently.

R. L. Sisson Talks on Paper

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., April 10, 1933—An interesting address on problems confronting the paper industry was delivered this week before the local Rotary Club by Rufus L. Sisson, general salesmanager of the Racquette River Pulp and Paper Company. He declared that the industry is fourth among the great industries of the world in use of power, fifth in employment of labor and fourth in the value of output. In regard to problems facing the paper manufacturing industry he brought out that about twenty-five years ago the center of the entire industry was located in Northern New York within a radius of seventy-five miles of this village. Within the past few years, however, he claims that American concerns have transferred their operations to Canada and certain sections of the South with the result that a number of mills in this section have been abandoned. He blamed the unrestricted importations of news print from Canada into this country as the principal reason for the present difficulties confronting the industry here.

Scandinavian Wood Pulp Prices

WASHINGTON, D. C., April 12, 1933.—Norwegian wood pulp prices are unchanged reports received here state. Swedish quotations are reported to be slightly lower than Norwegian. The continued strength of the dollar exchange is a great encouragement to Scandinavian pulp producers. Any weakening would reduce their returns from sales to United States purchasers.

New York Trade Jottings

George S. Bleyer, salesman, of 340 Daube avenue, Hewlett, Long Island, has filed a petition in bankruptcy, listing assets of $100 and liabilities of $84,303.98.

* * *

H. Merton Joyce, vice-president and manager of sales of the Great Northern Paper Company, with offices at 342 Madison avenue, New York, has just returned to duty after a three weeks vacation in Florida.

* * *

The John M. Hart Company, Inc., has removed its offices from Suite 2710 to Suite 820 in the Graybar Building, New York. The telephone number remains as before, viz., Mohawk 4-7212.

* * *

Carter, Rice & Co. Corp., general paper merchants, have removed their New York offices from 291 Broadway to the Woolworth Building, 233 Broadway. The telephone number is Worth 2-2706.

* * *

Frank Purington was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt on Monday last. Mr. Purington presented an interesting survey of the mill operations of his organization, the Eastern Manufacturing Company, and illustrated his address with many stereopticon views. His instructive talk was thoroughly enjoyed by the large gathering present.

* * *

Joseph L. Fearing, vice-president of the International Paper Company, has accepted the chairmanship of the Paper Industries Division of the Trade and Industry Committee of The Salvation Army United Appeal, according to an announcement by Thomas J. Watson, president of the Merchants Association, and chairman of the committee. Mr. Fearing is organizing the paper industries field for participation in the fund-raising campaign which is now under way. The Army is seeking $1,110,000, of which $565,000 is needed to continue emergency relief activities such as free food stations, shelters, family welfare bureaus and employment services, and $545,000 is required for the maintenance of institutions which include homes and hospitals for women and children, day nurseries and fresh-air camps.

Waste Paper Prices Not Unreasonable

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1933.—Rates on waste paper and scrap pulpboard, in carloads, from Maspeth, N. Y., Jersey City and Newark, N. J., and Philadelphia to Big Island, Va., have not been found unreasonable or otherwise unlawful by the Interstate Commerce Commission in a decision in the case of the Bedford Pulp and Paper Company against the Erie Railroad Company. The complaints have been dismissed.

Oregon Pulp & Paper Co. Refinanced

Refinancing operations of Oregon Pulp and Paper company have been successfully concluded, according to announcement. Principal payments have been set ahead three years on its $900,000 bond issue, with interest raised from 6 to 6½ per cent during that period. The company covenanted to pay no preferred or common stock dividends until the amortization schedule on its bonds is resumed on the original bond issue basis.

Deubener's Shopping Bag Patented

Howard L. Fischer, assignor to Walter H. Deubener, under date of March 14, 1933, was granted a patent on an invention relating to bags which are made upon a machine from sheet material or rolls of paper and which are adapted to provide a bag for various uses of a strong substantial nature adapted to resist wear and provide a means of carrying and supporting goods within the same in the most efficient manner, yet having an economical nature so that the bags can be marketed at a reasonable price.

A feature of the invention resides in applying reinforcing means to the material which makes the bag as the material passes through the bag machine so that when the material is discharged from the bag machine the finished bag is ready for use having reinforcing means extended along the side of the same to strengthen the bag.

The invention further includes a bag wherein the same may be used for a shopping container so that the bag is provided with suitable carrying handles to permit the goods within the bag to be readily carried, the body of the bag having sufficient strength to provide a tough and wear resisting material most adaptable for bags of this nature.

These bags have gained wide popularity. They have been marketed for some years by Deubener's Shopping Bag, Inc., Garfield Park, Indianapolis, Ind.

Stainless Steel Co. Files Appeal

The American Stainless Steel Company, of Pittsburgh and the Electro Metallurgical Company, of New York, are filing an appeal with the United States Circuit Court of Appeals at Baltimore in their infringement suit against the Rustless Iron Corporation of America. The lower Court recently held the Clement Patent on Stainless Iron under which the suit was brought to be invalid because of an earlier patent on similar material granted to Elwood Haynes. This opinion creates an interesting situation because the Haynes Patent is also owned by the American Stainless Steel Company.

The Rustless Iron Corporation's process of manufacturing rustless iron was declared by the Court to be "in all material respects a duplication" of that described by Hamilton & Evans in their process patent owned by the American Stainless Steel Company and which is the other patent in suit. However, the Hamilton & Evans Patent was held invalid because its essential features are said to be the same as those of an earlier patented process for producing ferro chromium. This portion of the lower Court's opinion seems to affect adversely not only the process patent on which the suit was based but also the process being used by the Rustless Iron Corporation.

Bids For Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1933.—The Government Printing Office has received the following bids for 6,250 pounds of blue antique cover paper; Aetna Paper Company, at 5.84 cents per pound; Perkins-Goodwin Company, 11.5 cents; Knowlton Brothers, Inc., 11.5 cents; Whitaker Paper Company, 8.8 cents and 7.7 cents; R. P. Andrews Paper Company, 6.52 cents; Barton, Duer & Koch Paper Company, 6.75 cents; Reese & Reese, Inc., 9.23 cents; Dobler & Mudge, 6.75 cents; Virginia Paper Company, 12.5 cents; Stanford Paper Company, 7 cents; L. Hyman & Sons, 8.88 cents less 2 per cent; Dill & Collins, Inc., 6.75 cents; Old Dominion Paper Company, 9.4 cents; and Major Paper Corporation, 9.25 cents less 2 per cent.

Tensilastic-equipped mills stretch roll dollars f-u-r-t-h-e-r

"Keep prices down!". . . "Keep costs down!" . . ."But don't sacrifice quality!". . . stiff orders for the men in charge of production.

It's being done . . . in mills that still manage to squeeze profits out of tight, closely competitive markets.

Inquire and you'll find that these are mills that weigh equipment purchases with shrewd common sense. You'll find, too, that these progressive, prospering mills generally specify "Tensilastics" for their rubber roll equipment.

Tensilastics reduce roll costs to the minimum . . . return their own cost over and over in savings . . . and, at the same time, deliver a quality and degree of service that is far ahead of usual conceptions of roll performance.

Tensilastics save grinding costs . . . for Tensilastics serve from two to six times the term of ordinary rolls between grindings.

Tensilastics save replacement costs . . . less frequent grindings prolong roll life proportionately.

Tensilastics save production costs . . . because a Tensilastic on YOUR machine is made specifically to meet the production requirements of that machine,—to cooperate with your methods,— to improve your product, —without shutdowns or difficulties due to roll troubles. Tensilastic Rubber Rolls, in table, press or felt carrier positions, preserve the life of wires and felts and add greatly to their efficiency. They have a friendly surface that will not wear nor chafe the clothing. They are not susceptible to surface scratches or mars,— will not roughen, corrugate nor distort.

Tensilastics retain their initial density and tensile long after ordinary rolls are ready to be discarded . . . and can be duplicated in these specifications at any time.

Try Tensilastics on your machines . . . a single roll or a complete installation. Check results . . . and learn how easily you can stretch rubber roll dollars.

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Rubber Roll Specialists for More Than 40 Years

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TENSILASTIC

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T35

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chicago, Ill.—The Chicago Carton Company, 4433 Ogden avenue, manufacturer of paper boxes and containers, has plans under way for construction of a new plant on site selected at Crawford avenue and District boulevard. It will be two-story and basement, 275 x 500 feet, reported to cost over $350,000, with equipment. It is expected to ask bids on general contract some time in May. It is understood that company will remove present plant to new location, providing large increase in capacity. A. Epstein, 2001 West Pershing road, Chicago, is architect and engineer. Company is affiliated with the United Biscuit Company of America, 1041 West Harrison street, same city.

Fulton, N. Y.—The Sendel Corporation, recently organized with capital of 100 shares of stock, no par value, will take over and consolidate the Seneca Fibre Products Company, Skaneateles, N. Y., and the Delavan Corrugated Box Company, Inc., Hiawatha boulevard, Syracuse, N. Y. Consolidated interest is planning an expansion and development program. New company is headed by Byron H. and Nathan H. Delavan, both of Skaneateles.

Niagara, Wis.—Kimberly-Clark Corporation, North Commercial street, Neenah, Wis., has let general contract to Fluor Brothers & Smith, 48 Otter.street, Oshkosh, Wis., for proposed alterations and improvements at branch mill at Niagara, recently referred to in these columns. Program will include alterations in machine and finishing departments, raising of roof over part of building, installation of new overhead trolley conveying system and other work. It will be placed under way at once. No estimate of cost announced.

Kalamazoo, Mich.—The Kalamazoo Paper Company is improving production schedule and has secured orders for more than four carloads of paper stock for lithographed labels for beer bottles, as well as carton labels, etc., for similar service. Increased activities are being carried out by the Sutherland Paper Company, which has also received orders for similar stock since the advent of legalized beer, while the Bryant Paper Company is another local mill recording like increase in demand for papers for such service.

Long Island City, N. Y.—The Ravenswood Paper Mill Company, Fortieth avenue and Marion street, has plans maturing for a new one-story addition, location noted, about 56 x 145 feet, to be used primarily for storage and distributing service. It is reported to cost over $24,000, with mechanical handling and other equipment.

Watertown, N. Y.—The Taggart Brothers Company, Inc., has filed notice of change in capitalization from 210,000 to 200,000 shares of stock, no par value. Company is a subsidiary of the Taggart Corporation, 60 East Forty-second street, New York, N. Y. The Taggart-Oswego Paper and Bag Corporation, Oswego, N. Y., an affiliated interest, has arranged for a reduction in capital from 45,000 to 38,000 shares, no par value.

New York, N. Y.—The Value Paper Box Corporation, recently organized, is said to be planning early operation of local plant for the manufacture of paper boxes and containers. New company is headed by Michael H. Kasnowitz, 198 Canal street, and David Hoffman, 500 West 176 street, New York.

Monroe, Mich.—The River Raisin Paper Company is developing increased production for the manufacture of corrugated fiber shipping containers, designed to hold six bottles of beer per unit. Company is said to have secured a sizable quota of orders for containers of this type from several large brewing interests.

Valdosta, Ga.—The American Cyanamid Company, New York, has completed the rebuilding of resin sizing plant at Valdosta, destroyed by fire last November. In connection with reconstruction, former plant has been enlarged for production of resin specialties for treating paper. It is expected to develop full output at the new mill at early date, giving employment to large working force.

Covington, Va.—The Industrial Rayon Corporation, West 98th street, Cleveland, Ohio, has awarded general contract to the Hughes-Foulkrod Company, Schaff Building, Philadelphia, Pa., for proposed new additions to branch cellulose rayon mill at Covington, consisting of a main three-story production unit, 44 x 58 feet, one-story structure for storage and distributing service, 104 x 220 feet, and two smaller buildings, each one-story, 25 x 30 feet, for mechanical service. Work will cost about $100,000, including equipment, and will be placed under way at an early date. Christian, Schwarzenberg & Gaede Company, 1836 Euclid avenue, Cleveland, are architects. Hiram S. Rivitz is president.

Quebec, Que.—Gordon Scott, guardian for affairs of Price Brothers & Co., Ltd., with news print mill at Kenogami, Que., has secured permission from the bankruptcy court to arrange for a loan of $250,000, to be used for operations at company mill and current obligations.

Toronto, Ont.—The Ontario Hydro-Electric Commission, Toronto, has taken over the transmission lines and power properties of the Ontario Power Service Corporation, a subsidiary of the Abitibi Power & Paper Company, Ltd., Toronto. The Commission recently acquired the property on a bid of $14,000,000, at a court sale.

New Companies

White Plains, N. Y.—The Eastern States Insulation Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to manufacture paper and allied insulation materials. The incorporators include John E. Ketonen, 8 Howard avenue, and William S. Kess, 174 Lakeview avenue, White Plains.

Covington, Ky.—The Covington Paper and Wooden-

You Wouldn't Build a Costly Brick House And Put a Cheap Roof On It . . . .

Then why have fibres pass through an expensive system careful stock preparation into an improper Screen ?

The screen is an important part of the paper making process. For upon it depends to a large extent the formation and cleanliness of sheet, regardless of how carefully the fibres have passed previous processes. That's why you should give serious consideration to screen operation. And that is why we ask you to consider these features of the Jones Screen:

.010" slotted plates eliminate in many cases the need of preliminary centrifugal cleaning equipment without appreciably affecting the capacity.

Gentle vibrating action—no forcing of stock—allows passage of only clean, uniform fibres through screen slots.

Perfect screening action keeps the slots clean and permits a continuous inflow of accepted stock. Cleanliness and uniformity of the sheet is assured.

Affords most convenient accessibility—easy to clean at all times—requires little attention in its operation and maintenance.

Low power consumption—a 5 H.P. motor takes care of most stringent mill conditions. Capacities up to 6,000 pounds an hour.

In fact, it embodies every improvement to assure the highest efficiency of performance at the lowest cost of operation.

Write for our new Screen Bulletin.

The Jones Screen Challenges Comparison

Jones

E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of High-Grade Machinery for Paper Mills

ware Company has been incorporated to deal in paper products of various kinds. The principal incorporators are Harry Schneider and John Green, both of Covington.

New York, N. Y.—The Charles Freeman Paper Corporation has been incorporated with a capital of $10,000, to manufacture and deal in paper products of various kinds. Charles Freeman is principal incorporator. Company is represented by the Albany Service Company, 315 Broadway, New York.

New York, N. Y.—The William A. Freedman Corporation has been incorporated with capital of $10,000, to manufacture and deal in paper stocks of various kinds, cardboard stocks, etc. William A. Freedman is the principal incorporator. The company is represented by Lester L. Rosenberg, 10 East Fortieth street, New York, attorney.

Chicago, Ill.—The Superior Waste Paper Corporation, 841 West 22nd street, has been organized with capital of $50,000, to deal in waste paper stocks. The incorporators are Alvin Sandroff and Melvin H. Glass.

Brooklyn, N. Y.—The Lipman Paper Company, Inc., has been chartered with a capital of 200 shares of stock, no par value, to manufacture and deal in paper goods. The incorporators include David Strauss and Mortimer J. Cohen, 160 Broadway, New York.

Boston Paper Market Quiet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 10, 1933.—Quietness continued to prevail, with prices unchanged, in the wholesale paper market here last week, as during the previous week. An exception was noted, however, in some substantial orders for stock for new hotel menus, of the fancy variety, occasioned by the addition of beer to the list of refreshments. There was a little spurt on papers to be used for spring advertising. In a few other cases firms and mill representatives enjoyed a good demand for papers and specialties handled by them. Preparations are being made for merchandising papers for wedding announcements. In wrapping paper there was a sizable number of orders, although small ones predominated. Unfavorable weather for shopping during the week lessened retail trade considerably. Collections continue slow.

In boards a new call developed—for beer mat boards and for covers for beer bottles to keep out the light. The call for material for jigsaw puzzles and their containers is reported to be somewhat less. In paper stock there was a better feeling. Mixed papers and old newspapers were in good demand, with prices strong at the same levels, and with an upward tendency. Some grades were less active, so that values declined. White blank news was marked down to .85 @ .90, compared with a previous range of 1.00 @ 1.05; No. 1 kraft went to a flat .80, compared with a range of .75 @ .80; domestic gunny bagging declined to .60 from a range of .62½ @ .67½; foreign manila rope to 1.40 from 1.45; transmission rope to .90, against 1.00, and scrap burlap to .50 @ .62½ against .75 @ 1.00.

Development of American Industries

Last year the American Paper and Pulp Association was requested to prepare an article on the pulp and paper industry to be included as a chapter in a reference work —The Development of American Industries—to be published under the auspices of New York University. A lengthy and comprehensive article was prepared by Charles W. Boyce, executive secretary of the association, with a critical review and comment by W. G. MacNaughton, of which reprints in booklet form have just been published.

Plans for Superintendents Meeting

The paper manufacturers of Green Bay are giving their complete cooperation to Chairman Frank J. Timmerman and his committee in the preparations for the Fourteenth Annual Convention of the American Pulp and Paper Mill Superintendents Association which will be held June 8, 9 and 10 at Green Bay, Wis.

J. M. Conway, president and general manager of the Hoberg Paper and Fibre Company, Green Bay, has agreed to deliver an address on "Your Duties and Mine."

Judson G. Rosebush, vice-president and general manager of the Northern Paper Mills, Green Bay, has also agreed to address the superintendents.

C. K. Andrew, manager of the Blandin Paper Company is expected to tell his experiences in the windowless paper mills at Grand Rapids, Minn. Ventilation and lighting of this mill is artificial throughout. Paper mill operators throughout the country will undoubtedly be interested to hear from Mr. Andrews just how this idea has worked out in practice.

Frank P. Vaughan of the Bay West Paper Company of Green Bay will act as toastmaster at the Thursday luncheon, when the speaker will be Jim Flynn of the Great Northern Railway.

The committee is preparing a Sports Jamboree for their guests. A novel eighteen hole golf tournament will be staged under conditions that will inspire the crack golfers to put forth their best efforts but that will at the same time afford ample breaks for the boys who shoot in three figures. This tournament will be played on the course of the Oneida Golf and Riding Club, comprising four hundred acres of beautiful woodlands and hills. A shooting tournament will also be staged on the range of the Green Bay DePere Gun Club.

"While the superintendents are due to acquire new and important knowledge regarding the pulp and paper business," said Frank Timmerman, "they will undoubtedly find much to revive their interest in the early history of this section of the United States. Green Bay was discovered by Nicolet in 1634. This place has been the scene of a long series of historical events since that time. This town, which is now known as one of the greatest tissue paper producing centers in the world, has historical associations with such immortal names as Joliet, Marquette, La Salle and Hennepin."

Private Reforestation in New York

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., April 10, 1933—An appeal for an increase in private reforestation programs was issued this week by the Conservation Department following passage of bill by the Legislature cutting appropriations for reforestation from $1,200,000 to $650,000. It was announced that the reforesting of waste and abandoned lands has made rapid progress in recent years and of the 41,000,000 young trees transplanted last year from state nurseries about 5,000,000 went to fill orders from farmers. During last year about 22,124,000 trees were planted by the state and the department expects to maintain a similar schedule this year despite the lowered appropriation.

The reduction in the appropriation will cause principally a decrease in the acreage of the land which the state otherwise would purchase for reforesting under the Hewitt amendment which provided for the acquisition of about 1,000,000 acres over a period of several years. The department has already contracted in advance for the purchase of thousands of acres but a year or so usually elapses before titles are confirmed.

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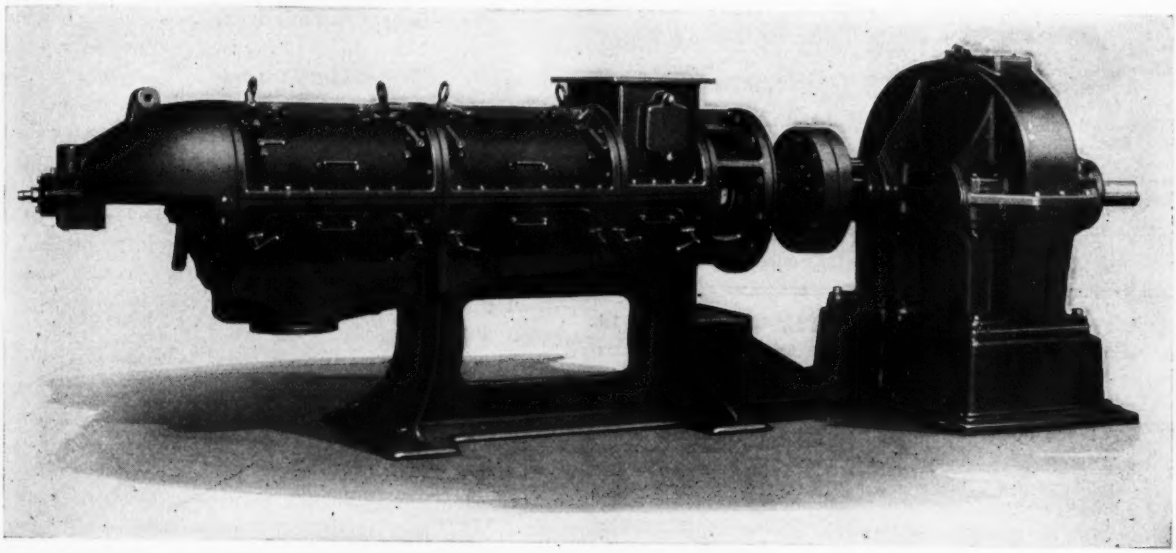

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SOUND FORESTRY POLICIES

Two proposals looking to application of sound forestry policies will be given consideration by the Chamber of Commerce of the United States at its Annual Meeting in Washington May 3 to 5. They have been advanced by the Chamber's Committee on Natural Resources, William V. Hodges, of Denver, chairman.

The proposed resolutions read: "In the formation of national policies affecting two important natural resources, —petroleum and forests,—two federal agencies, the Federal Oil Conservation Board and the Timber Conservation Board, have proved of great value in gathering facts and aiding cooperation between the federal government, states and individuals to develop sound measures for conserving these resources and stabilizing industries dependent upon them. Particularly valuable have been the economic studies by committees appointed by these boards to forecast probable demands.

"Voluntary services have made it possible to administer these agencies at practically no cost to the government, and we recommend that they be continued along the same general lines as at present.

"Forests are a crop. Recognition of this fact in developing tax systems and in applying harvesting methods would tend to assure the nation adequate future forest supplies, and would aid in stabilizing the dependent industries. Forest taxes should be levied as far as practicable in harmony with the general principle of a 'yield tax.' Much progress has been made in applying this general principle to young growing forests and effort should be made to apply it gradually to mature forests in ways which will not unduly burden any class of timberland owners.

"The nation's annual cut of forest products should not exceed the amount of annual growth. To apply this principle of 'sustained yield' on a scale commensurate with the nation's need will require cooperation between the federal government, the states and private individuals.

"We, therefore, recommend that federal and state officials and private individuals of the industry without delay take action to determine practical measures for applying the principle of 'yield tax' and 'sustained yield' to our forest resources. Business organizations should lend their active support to that end."

The committee in explaining its views as to the necessity for the policies stated in the two resolutions, says "The decline in values of forest lands has already produced serious situations in many important timber regions of the country. Extensive areas are today tax delinquent and are increasing at a rapid rate. This threatened loss of taxable property is alarming communities whose prosperity depends upon the maintenance of forest resources. Prompt remedial measures should be applied if these processes of devaluation of forest lands are to be stopped short of reaching a condition comparable to that in some branches of agriculture.

"Experience has shown that the usual ad valorem general property tax is inappropriate to forest lands in most of the important timber sections of the country, whereas the principle of the 'yield tax' which collects the tax when timber is harvested, is coming to be generally recognized as a fundamental principle to apply to forest lands. It has already been successfully applied to young growing timber and can be applied to mature timber with certain modifications to meet the special requirements of different regions.

"Wide recognition and development of the principle that the forest is a crop and that the annual cut should be no greater than the annual growth would place the country upon a sound forestry basis. This principle known as 'sustained yield' is true forestry. Its accomplishments, moreover, would not only assure the nation an adequate supply of timber for the future but would through its check upon excess production go far to maintain reasonable values for timberlands and to stabilize the industries dependent upon them.

"To carry on modern operations in accordance with the principle of harvesting only the annual growth requires large areas,—areas whose assembling will require the cooperative effort of the federal government, the states and private individuals.

"The inter-mingling of ownerships of the federal government, the states, and private individuals and the intimate relation they have to industrial, social, and governmental problems of forest communities calls for cooperative effort of a high order. The federal and state government in most interested sections have officials well qualified to deal with these subjects and we are convinced that there is strong sentiment among private owners to make extra effort to put these principles into effect. We believe that the time is opportune to urge active consideration of these measures by the parties directly interested. Private support is essential and business organizations should interest themselves in encouraging such support."

Paper Exhibit Committee Formed

Phil A. Howard, president of the Paper Foundation, has appointed the following committee to assemble units for the Paper Exhibit to be made at the Century of Progress Fair at Chicago:

Executive Chairman: William Bond Wheelwright, formerly of Geo. W. Wheelwright Paper Company.

Vice Chairman: Frank M. Stephens, Sorg Paper Company.

Commercial Division: O. H. Runyan, Bradner, Smith & Co.

Domestic Division: J. P. Hair, Dennison Manufacturing Company.

Industrial Division: Lee J. Donovan, Fletcher Paper Company.

Technical Division: Dr. Louis Ehrenfeld, Rosenwald Museum of Science & Industry.

The committee has met and the duties have been assigned to the individual members which their experience best qualifies them to handle.

The plans are based upon The Paper Foundation's slogan: "Make This Nation Paper Conscious." The objective is to increase the per capita consumption of Paper.

As previously announced, the Paper Exhibit will be divided into four divisions. Under each division will come the various papers and paper specialties appropriate to it, and it will be the aim of the committee to see that all kinds of paper and paper specialties get proper representation.

William Bond Wheelwright, until recently Chicago representative of the Geo. W. Wheelwright Paper Company, is devoting his entire time to the work. This is his thirtieth year in the paper or allied trades. His general knowledge of paper has been supplemented by experienc in advertising. He was the author of the Text Book of the United Typothetae's Apprenticeship series on paper.

Frank M. Stephens was connected for years with the Seaman Paper Company as executive vice-president, and later became vice-president of the Bryant Paper Company. He is now manager of the Chicago office of the Sorg Paper Company. Mr. Stephens has taken an active part in the work of the new Book Paper Association, and he brings to the committee a long and wide experience in the merchandising of a great variety of papers.

O. H. Runyan has been for many years with Bradner Smith & Co., being particularly active in sales promotion work. He has delivered scores of lectures on paper before printing and lay audiences and knows how to make paper interesting to the public. He conducts the paper department of "Share Your Knowledge" published by the International Association of Printing House Craftsmen, which will hold its annual convention in Chicago this year, and is a member of their International Educational Committee.

J. P. Hair is the Chicago manager for the Dennison Manufacturing Company, so that his knowledge of paper specialties and conversion of paper into commodities for domestic use is that of an expert.

Lee J. Donovan was for twelve years with the Seaman Paper Company, three years in the paper jobbing business, five years with the Hoberg Paper and Fibre Company, and for the past three years has been the Chicago representative for the Fletcher Paper Company and the Moyer & Pratt Tissue Mills. He has a specialized knowledge of converting papers.

Dr. Louis Ehrenfeld is on the staff of the Rosenwald Museum, heading their chemistry department and has a keen knowledge of the technique of industrial exhibits. He is also planning the permanent exhibit of paper to be installed in the Museum of Science and Industry, and in that capacity has offered to take over much of the Paper Foundation's material after the closing of the World's Fair. This will give paper a permanent place in the leading Industrial Museum of America.

The committee will welcome all suggestions from members of the paper industry, and takes this opportunity of extending an urgent invitation to those who wish to make suggestions. All such communications should be addressed as soon as possible to The Paper Foundation, Conway Building, Chicago, Ill.

It is hoped that the above outline of the plans for "Paper on Parade" will instill a better appreciation throughout the Industry of the importance which the Exhibit may achieve. The necessity of increasing the per capita consumption of paper needs no argument. Except through the slow normal growth of population this can only come about by hearty cooperative action of the entire industry. This first big effort deserves your support. It is in your interests. If you have not already signed up as an exhibitor, or as a subscriber to The Paper Foundation, your favorable action is urgently requested. The excellence of the exhibit and the benefit to the Industry will be in proportion to the support received.

Senate Passes 30-hour Week Bill

The U. S. Senate on Thursday of last week passed by 53 to 30 the Black Bill to prevent interstate commerce in commodities produced in factories whose employees worked more than 30 hours a week. The *New York Times* in its comment on the bill in part said:—

"At any rate, it has made Speaker Rainey stare and gasp. 'There is a lot of dynamite in that bill,' he told a press conference yesterday. There will be no explosion at present. The sober House is going to hold back the hotheads of the other body. Wait till all of President Roosevelt's 'reconstruction legislation' has been passed. Then the thirty-hour-a-week proposal may be taken up.

"According to Mr. Rainey, 'it is not a part of the Administration legislative program as yet.' That program is sufficiently ample without this doubtful and perilous project.

"The genesis of this bill and the submissiveness of the majority of the Senate to a project economically and constitutionally so equivocal have a curious look. Were some Senators trying to force the President's hand? Did some Senators vote yes with their tongues in their cheeks, hoping or confident that the House would squelch the bill?"

Gradual Upturn In Paper Box Industry

During the first three months of the current year there has been a steady recovery in the production of paper boxes from the unusually low levels which persisted during the greater part of 1932. Inquiries have become more numerous since the middle of March, attributed to the better feeling in distributive channels and to the possibility of price advances. Prices of box board materials already are higher, and quotations have been withdrawn by many concerns, in anticipation of an upward movement, according to a survey of the paper box industry, which has just been completed by Dun & Bradstreet, Inc.

"Long-deferred orders," the survey points out, "now are being placed by manufacturers of shoes, clothing, shirts, and wearing apparel. The wide popularity of the jig-saw puzzle in recent months has kept many of the paper box factories at a higher rate of activity than otherwise would have been possible, in view of the tardiness with which requirements have been covered this spring."

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

What Constitutes Invention?*

It was pointed out in Bulletin No. 6 (PAPER TRADE JOURNAL, March 26, 1931) that there are certain conditions and pre-requisites which are absolutely essential to an inventor's right to patent protection. Not the least important of these requirements is that the device or thing for which protection is sought must have been created by the exercise of inventive ingenuity and must involve invention over the prior practices in the art. The question "Has inventive ingenuity been exercised?" is undoubtedly the most vexing in the entire realm of patent law, and thus far no formula has been prescribed which affords a ready solution. As a result of the many cases which have been decided on their individual merits by the courts, there has grown up a set of negative rules which are usually applied in determining whether certain variations in old devices and processes do or do not arise to the dignity of invention. These negative rules are far from being infallible and have in many cases led different courts to conflicting decisions on the same set of facts, but they have proved extremely useful.

One of the most important of the negative rules is that the mere carrying forward of an old conception involving nothing more than a change in form, proportions or degree is not such an invention as will sustain a patent even though the change may produce a better result. An exception to the rule occurs if the change though apparently one in form, proportions or degree, effects a disproportionate or unexpected change in result or remedies a hidden defect. Within the last two years three cases involving inventions in the paper industry have been decided which illustrate both the general rule and its exception.

Two cases illustrating the general rule are those of In *re* Richter, 53 Fed. Rep. (2nd) 525; 11 U. S. Pat. Q. 251, and In *re* Wells, 12 U. S. Pat. Q. 430. The facts of the first case are as follows: The commercial sulphite pulp industry has heretofore been based upon the use of acid sulphite cooking liquors containing about 1 per cent combined sulphur dioxide and free sulphur dioxide greatly in excess of the combined sulphur dioxide. Indeed, a combined sulphur dioxide content of about 1 per cent in the liquor has been regarded as being all that is necessary to cause the pulping of wood. Richter of the Brown Company claimed to have made the discovery that by pulping wood in acid sulphite solution containing about 3 to 4 per cent of combined sulphur dioxide and 3 to 4 per cent of free sulphur dioxide, a pulp could be produced which was lighter in color and having a greater strength than that previously produced. The court sustained the Patent Office in its refusal to grant a patent on the ground that the change in amount of sulphur dioxide did not produce a disproportionate result and was therefore nothing more than a change in degree. In fact, one of the reference patents indicated that the proportion of sulphur dioxide could be varied according to the papermaker's judgment and skill.

The facts of the Wells case are as follows:

It was old to cook vegetable fiber with chemicals until the middle lamelli is softened and then to separate the fibers in a rod mill. Wells sought to obtain a patent covering the same process, except that his claims stated that the material treated includes fiber in the proportion of at least 5 parts and not more than 9.5 parts to 100 parts of fluid by weight. The court agreed with the patent examiner that in the absence of a disproportionate result, Fells was not entitled to a patent.

The case of *Ex parte* Cofrin, 8 U. S. Pat. Q. 273, illustrates the exception to the rule. Cofrin claimed to have discovered that certain deleterious effects on the forming sheet of a fourdrinier paper machine are caused by the water that adheres to the tube or table rolls being forced through the wire and against the forming sheet by the action of centrifugal force. His solution was simply to sufficiently increase the size of the tube or table rolls (10 inches in diameter) to substantially decrease their angular velocity and hence the centrifugal action on the water adhering thereto. The Board of Appeals decided that the change was something more than a change in degree because it solved a hidden difficulty. Cofrin was therefore granted Patent No. 1,790,534.

* This is the 19th contribution of the Patents Committee of the Technical Association of the Pulp and Paper Industry, Charles W. Rivise, 1321 Arch Street, Philadelphia, Pa., Chairman.

Chemical Terms in the Paper Industry

Chemische Fachausdrücke der Zellstoff und Papierindustrie. Eberhardt Munds. Güntter-Staib Verlag, Wochenblatt fur Papierfabrikation, Biberach-Riss (Württemberg), Germany. 1933. 31 pages. Price, RM 1.

This little book was written at the request of the editor of *Wochenblatt für Papierfabrikation* to furnish a short, easily understandable explanation of chemical terms used in the pulp and paper industry for those working in this field who do not have a chemical background. It is really a dictionary (the index contains about 200 items), although it is written in a descriptive style, starting with cellulose, describing the various forms and tests and then passing to the various chemical operations, such as bleaching, the utilization of waste sulphite liquors, the chemistry of water, hydrogen ion concentration, rayon (viscose silk), etc. Other chemical processes, such as sizing, filling, coating, are not discussed. C. J. WEST

Technology and Social Progress *

By Walter Rautenstrauch[1]

I hope this afternoon, in the few minutes we consider this subject, that we may develop some basic and fundamental principles which may help us to orient ourselves in the present situation.

I prefer to consider problems of fundamental principle rather than problems of expediency, or immediate remedies. Because I believe that whatever is done to adjust ourselves to the present situation and bring about a reconstruction, those things must conform to basic and fundamental principles if they are to endure and amount to anything.

I feel there is a great deal of truth in Lincoln's remark to a friend in Chicago, when this friend asked what he could do to help him in Chicago at the time of his second nomination. Lincoln wrote this friend and said, "If you can do anything, you will know what to do." There is a great deal of truth in that statement.

It must be apparent to anyone observing social change that we are entering a period of changing concepts with regard to industrial enterprise. We are entering an era of public enterprise as distinguished from private enterprise. (And I use the term "public enterprise" in the sense of enterprise for the public good.)

In one of your meetings this morning, I heard a speaker state that the paper business was going to prosper when the people of the nation prospered. And every business is going to prosper just so soon as the nation prospers. What we need to do is to get out of our small, selfish selves, and begin to think in broader terms and think of our national prosperity. If we take care of that, and begin to conduct ourselves along those lines, the paper business is going to be good and all other businesses are going to be good.

Our trouble has been that we thought we could run a business by itself. In fact, I think this whole era has been marked by the rise of separate and distinct functions in the social order which have had no relationship with each other. We have attempted to build up a national life by a group of aggregate functions.

You have three businesses that concern you in the paper industry. One is the business of making paper; another is the business of selling paper; and the third is the business of making money out of paper. And that has been divided, in many industries, into two groups of people. There have been the possessors, who have not cared whether it was paper or pig iron or cotton or what it was, so far as the medium was concerned. But they have been the money-makers. The whole idea has been to make money out of a particular industry regardless of whether it was paper, pulp or what it might be. And then there have been those who have been interested primarily in the art and perfection of the art of paper making. There is a wide gulf between the two, and that gulf has to be narrowed. And there must be a unity. It must be recognized that the paper industry as a whole must function as a paper industry and all the industries must function together if we are going to have a strong national life. It simply will not work any other way.

And so, I say we are passing from the period of private enterprise to enter the era of public enterprise.

Biological Analogy

As we look to other experiences for examples, we find many. Taking the development of the biological organism, we see that in the whole history of biological development, from the cell to man, there appeared new functional forms in the organism; and at the same time, there appeared integrating, coordinating systems and devices which enabled these functions to work harmoniously and be responsive to each other. It would be impossible to have any higher development of a biological organism without a very delicate nervous system. And what we lack in our nation, in our country, in all countries, is that delicate nervous system which causes all these several functions to be responsive to each other and work in harmony with each other.

We find the same thing true in the technological developments. The power plant is not an aggregate of boilers, turbines, feed water heaters and pumps, and all these functional devices. That would never make a power system in all the world. But the power system is possible as a power system because each of these units is designed with respect to the other units and their proportions are in accordance. The boiler capacity is in proportion to the turbine requirements, with sufficient overload to take care of emergencies, and the generator is in proportion to the turbine, and all the pumps are in proportion to the other units. In addition, and most important, we have these integrating, tying-in, harmonizing systems, which cause the whole thing to operate as an harmonious and integrated unit. The power systems would be absolutely impossible except for these tying-in features.

And so, as we see that process in the development of the biological organism, as we see it in the technological developments, I think we ought to have sense enough to see that that is the thing that must take place in our national life if we are going to have a sustained condition of economic well-being. It can work in no other way. We must study our problem and find out what are these relationships and devise some means for tying our several social functions together, so that they will be responsive to each other's needs. Industry must be responsive to human need.

It is simply ridiculous that we have tremendous natural resources at our disposal, all the equipment for making food, clothing and shelter, and yet millions of people are out of work, in hunger, misery and want.

Now, reconstructive measures do not come as the result of looking to the past and saying that we have had depressions before and we will wiggle out of this one, and it is a natural sort of thing to happen. We once looked upon devastating plagues the same way. People had an idea that you had to have a smallpox scourge every once in a while. It was a natural thing, an act of God. And so there were periods of illness and plague and devastation, and people never got over the recurrence of these plagues until they began to study some fundamental things about them. When we began to understand the action of bacteria, and began to understand the application of these to health, then we began to overcome these things and we no longer have the plagues.

Social Conditions Due to Social Pactices

It is foolish to say that there are certain inevitable economic laws that are working, and as a result of the

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* An address presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, Pennsylvania Hotel, New York, N. Y., February 13-16, 1933.

[1] Professor of Industrial Engineering, Columbia University.

working out of these laws in time, things will adjust themselves and we will be all right again. Social conditions are due to social practices and when we change social practices we are going to change social conditions.

We have built up large credit capital institutions which have operated as credit capital institutions of themselves and without relation to the very foundaitons upon which their life and growth depended. And with all due respect, to the banking fraternity (we are all guilty, manufacturers and everybody).

The banker has been short-sighted enough to load the industries with all of the debt and overhead charges he could, and it simply will not carry any further. These industries have been looked upon as mediums for carrying securities and carrying the burden of debt so as to create incomes, and that has been done without any reference to the very foundation upon which the success of the bonds and securities themselves depended.

Manufacturers learned some time ago that those who made their products also bought their products. That was a hard lesson to learn but people learned after a while that the producers of goods were also the purchasers of goods. And we have to learn with reference to the issuance of securities, that these securities are only good in so far as the industry is prosperous. And the industry is not going to be prosperous until people as a whole are prosperous. Paper will be bought when people need paper, and they will need paper just so soon as business conditions are better.

The best thing you can do, to straighten out the paper industry is to do something for the country as a whole.

Now, on the problem of adjusting ourselves to new conditions, I think it is important for us to realize that there are some fundamental, basic laws underlying the social changes that are happening. People have an idea that physical laws are something that are found in books of physics and chemistry, and that after you get through the high school and the college, all you have to do is to throw the book away and go into business; that there is something operative there which has no relation whatever to these laws of physics and chemistry which you read about in your books at college. It does not work that way.

There are basic and fundamental laws by which things proceed, and there are social laws. When we violate those laws we suffer the consequences. We have been so accustomed to having laws made for us that we feel we can go against the natural laws and just pull things through and, by loud talking and persuasive action we can overcome a natural law.

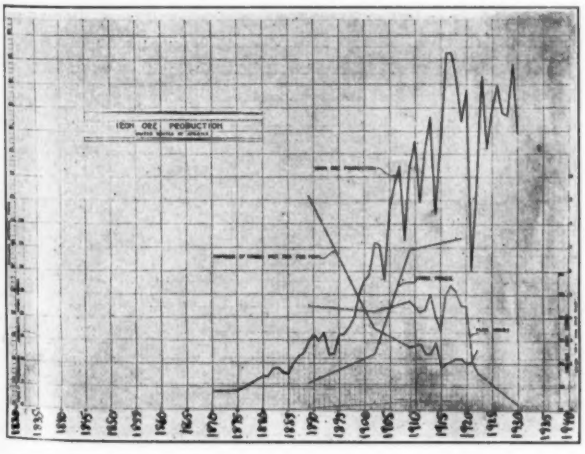

FIG. 1

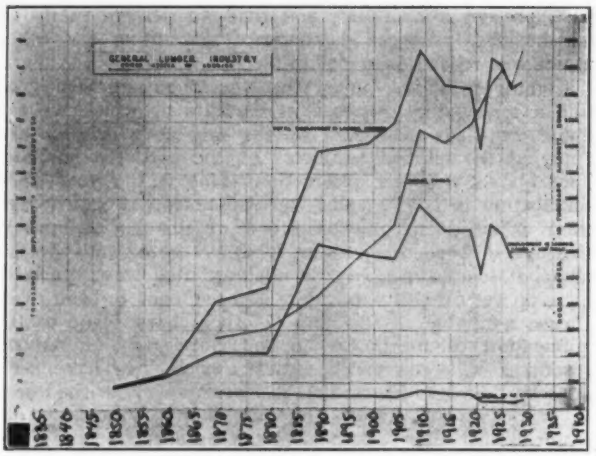

FIG. 2

Principles of Social Growth

We have had entirely too much salesmanship in legislation and also in business. People think that if they are clever enough and have considerable political strength they can enact laws that are going to do something. Well, they only either help or hinder the progress of society. Man cannot make a law. He may define the conduct of society through his legislative actions, and by defining that, may either run contrary to or with natural laws of social growth. But he cannot make a law.

Therefore, those who are in positions to make decisions in regard to social laws should know something about the underlying principles of social growth in order that they may act intelligently. One of the greatest difficulties we are operating under is that those who are in positions of responsibility, rendering decisions about things, have not the slightest concept of the physical factors or the conditions determining the things that they are making decisions on.

That is the criticism business men make when the banker gets in control of a business. It is not because he is a banker. He might be anything else. He might be a lawyer. But there are certain things that must be understood in order to direct the course of business events properly.

I would like to call your attention to several significant had some of the charts which I brought with me today, showing the nature of the work we are doing at Columbia University trying to find out some of the physical factors that underly our business situation. These few slides are shown to indicate some of the things we are doing. This is an experiment in the sense that it is an exploration. We are trying to find out something. We are not trying to prove anything nor put over anything, but we are just trying to find out a few simple relationships and endeavor to be guided by them, or to let those who wish to be informed of them, know about them.

Iron Ore Industry

I would like to call your attention to several significant things on these charts. These charts show, among other things, the rate at which we have been consuming our natural resources and the particular characteristics of these rates. Please note that while this chart (Fig. 1) covers a period of approximately one hundred years, that prior to these one hundred years you are going back for six thousand years; and it is out of these six thousand static years, when there was no change in the rate of doing work, that we arrived at many of our notions in regard to our

past, present and future, and that we derived many of our business practices, methods of accounting and other notions in regard to social conduct.

Coming suddenly out of these six thousand years, we find a tremendous increase in the rate at which we are doing work, as evidenced by the rate at which we are applying the natural resources of the earth to our use. This shows iron ore production. This is the year 1870 (indicating in Fig. 1) and you will note particularly that there is a general upward trend of this curve; and if that trend were to continue it would go up out of the chart. It just happens we do not do it that way. We have gone up very rapidly and there is a tendency to bend over. Please note that in this and in other charts. Due to the application of machinery to the converting of natural resources into commodities and services, we have been applying kilowatt hours, that is, horse-power, to the doing of work, in substitution for man hours, which are declining. This chart also shows the number of hours per ton per man. Now, you will note that the total man hours were fairly constant with not very much change except in 1915, where there is a big drop. Now should there be indicated a bending over like this (1917) and you do not have the rapid rate of increase, and should technological development continue as it has, and it probably will continue at even an accelerated rate, there is no justification in the belief that employment will be maintained but the probabilities are that it will go down.

General Lumber Industry

Fig. 2 shows the general lumber industry in terms of production and total employment. Production has gone up very rapidly, as you see, reaching a peak in the year 1908, and then with variations being more or less on a level. The general trend is to come up very rapidly and then tend to bend over. You see how rapidly horse-power is being introduced into the lumber industry, the employment in lumber camps and saw mills rising very rapidly from 1880-90 and has been oscillating along this central line for some time.

Fig. 3 shows lumber production. In 1905 there is a very rapid rise and if you should plot a trend line through these various lines here, you would find that the trend would be over to the right, very decidedly, showing a stabilizing condition as far as the production of lumber is concerned.

Agricultural Materials

Fig. 4 relates to corn. The upper curve is the world production of corn and the lower curve is production of corn in the United States. There you have the same general tendency. If the scale were a little different you would find that this curve would be very similar to the pig iron curve, having a rapid upward rise and then a tendency toward stabilization. You will also note that as we get into the later years the variations are more pronounced so that there is quite some change in the volume of production from year to year.

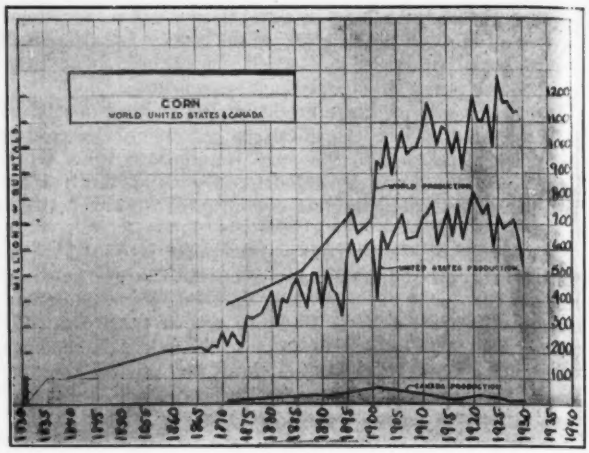

FIG. 4

Fig. 5 deals with wheat flour and grist mill products, the man hours per quintal dropping very rapidly until the year 1900, since when it has been more or less constant. We have the total man hours in the wheat flour and grist mill products occurring during this period, and dropping off after the year 1900 to a lower level, and then dropping again from 1925 on.

The Automobile Industry

Fig. 6 is an interesting chart illustrating the growth curve as applied particularly to the automobile industry. It is interesting to note that the growth of animals as to size and weight with respect to time, the growth of plants with respect to size and weight in time, and the growth of population in a particular country and the growth of an industry, all follow the same general laws. And these laws are expressed in terms of what is called

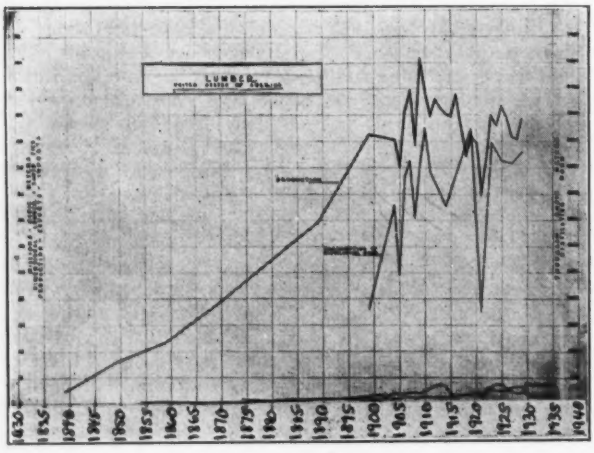

FIG. 3

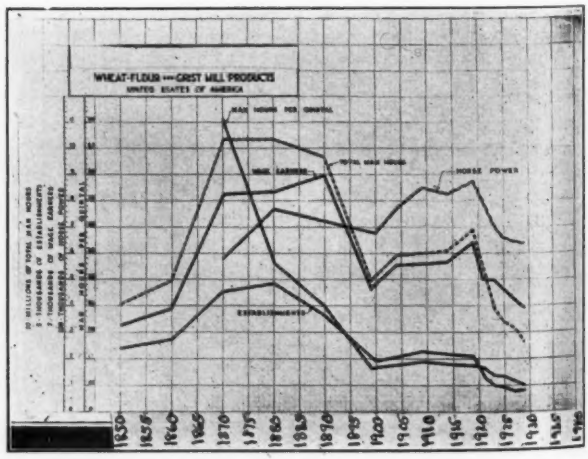

FIG. 5

the Pearl-Reed equation of growth. Raymond Pearl's book on "Studies in Human Biology" is quite illuminating with respect to these growth curves, and the laws underlying them. This was sent to me by George R. Wadsworth, after he had heard me present a talk on growth curves, and with his permission I am showing it as an illustration of the application of the growth curve to a particular industry.

Beginning in 1900 we have the automobile business developing slowly, through the years, and about the year 1916 a very rapid rise in the growth of the automobile business, until we come to a point known as an inflection point, where the growth is less rapid and the tendency is for the industry to grow in proportion to the population. So that it has what you might say is a replacement market before it. That perhaps becomes clearer from the curve which shows the persons per registered passenger automobile. That comes down rapidly and shows that there will be probably one automobile to five and a half people, or five and a quarter people, in the United States. That is about the level at which the industry will settle.

Now all industries follow some form of curve of that kind, and it is to be remembered that any notions we have in regard to industrial expansion during this period will have to be very much modified during the remaining period if we continue the business practices as we have in the past.

Fig. 7 is shown to indicate one way in which we are arriving at basic laws from these broken lines. This tendency line or trend line is known as a six year moving mean. If we should take 1880 for example, and take the three years following 1880 and the three years prior to 1880, and take their average, this would be the point on the trend line.

Now the central trend line running through the lower part of the chart, is a parabolic curve and is parabolic for all industries thus far studied. There are different parabolas ($Y=at^N$). For pig iron production N is about 6, and for the automobile industry N is 10. And so it varies with the different industries. But they are all parabolic curves. That, however, obtains only for that portion of the curve prior to the inflection point. Beyond the inflection point the general form of Pearl-Reed curve is applicable.

In Fig 8 there is a trend line for fabricated production and raw materials production together. That is total production. We found out later that N was more nearly 4.1 than 4. But there is the fourth power curve and we have plotted on this same chart Snyder's 87 series for production, and you will see how close that comes to the general curve which we have plotted.

Then, in the Report of the National Economic Research

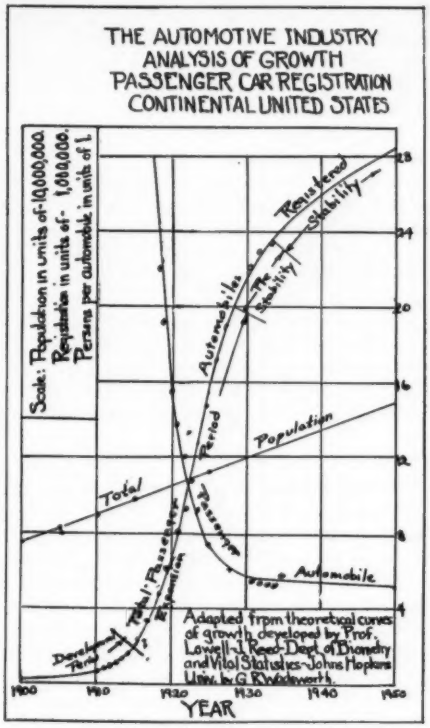

Fig. 6

Council, edited by Dr. Mills, we get the points on the production curve marked "Mills." And you will find that if the 4.1 power is used it will fall right in between those. We consider that a fairly good check on the equation for the growth curve in production.

In order to compare certain of these curves (Fig. 9) we adopted this device: If the total debt existing in 1900 is taken as unity, (let us take it as unity, whatever it is) and population, whatever that happened to be in 1900, as unity, and raw materials production as unity, then all of our parabolic curves will pass through this single point in 1900. Now, the equation, of Y equal to aT^N, has its

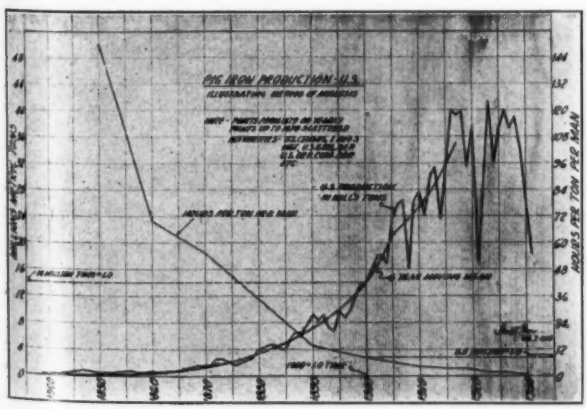

Fig. 7

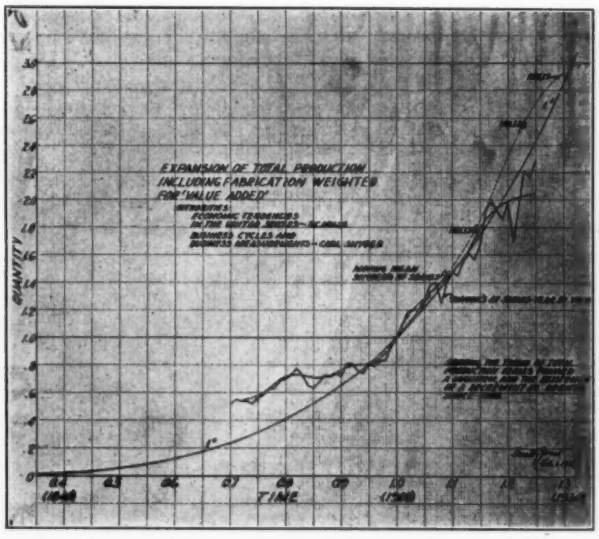

Fig. 8

origin in the year 1800, and the t is one century. That is the basis on which the curve is defined.

Now an interesting thing is shown here: While population has been increasing approximately as the square of time, and raw materials production as the cube of time, we find that debt has been increasing as the fifth power of time. It is a very significant thing.

We have been able to get some points from various reports of an authoritative character to check against this curve. So we feel that this fifth power of time curve for the curve of debt is rather close to what has actually happened, prior to 1920. Since that time it has increased approximately as the 9th power.

Now, with the debt increasing as rapidly as that, and with production of raw materials as the cube of time, total production being about the fourth power of time, you can readily see why things happened as they did and that the tremendous debt structure we have built up has crushed us.

In Fig. 10 we have fabricated production as the sixth power of time, raw materials production as the cube of time, a repetition of what we saw before, with total production weighted as the 4.1 power. These man hour curves, man hours per unit of product, which I showed you a while ago, follow this general law; that is, man hours per unit of product are decreasing as the fourth power of time.

In Dr. Mills' report we find that productivity between 1927 and 1932, per factory operator, increased 28 per cent and, taking the actual figures which he gave for man hours per unit of product, we find that they fall on our curve. So we feel that is a pretty good check. These points (indicating two others) fell off the curve, and we believe that that is due very largely to the War disturbance. It is not at all likely that the curve comes down as rapidly as is given by these figures, but the tendency is more nearly that way.

Now, these curves are only a few of the many that we have derived and will continue to develop, and are given in illustration of the kind of work we are doing.

I might call attention to the fact that many of the things that are happening in our society today are due to the technological development that we have had; not that we advocate that technological development should be curtailed but we simply say that due to technological development some other things have happened and the principal thing that has happened is that the relative claims of labor and capital to the goods produced have been altered and we have not supported production with the purchasing power necessary to sustain it.

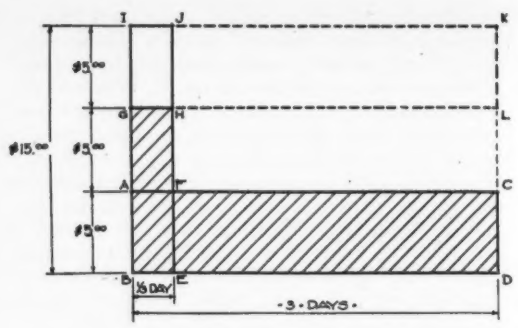

FIG. 11

The Controls and Balancing Equipment of the Present Social Order

The magnitude, variety and complexity of interaction of the forces operating in our social order, defy attempts to portray them completely and to indicate with simplicity the characteristics of their operation. There are several major forces of our present economic system, however, whose significant natures should be considered at this time even though the limits of this paper demand an exceedingly short and inadequate review. I refer to the problem of wages, purchasing power, cost and debt under the machine system of the use of energy. The following principle is operating in our economic system; namely, The Quantity-Time factor of Investment to produce a unit of product tends toward a minimum. The application of this principle may be illustrated by the following example:

If a workman operating with hand tools, and at a wage of $5.00 per day requires 3 days to produce a unit of product, the Quantity-Time factor of Investment is $15.00. If now a machine is used as the medium of energy and the cost to *possess* and operate the machine (including labor) is $15.00 per day and it requires 1/3 of a day to produce a unit of work, the Quantity-Time factor of Investment is now $5.00.

Graphically these two situations are shown in Fig. 11. But there are certain factors introduced by the substitution of the machine which militate against this trend, which we will now review. In the first place it will be noted that when the work is done by hand labor, the total wage to labor is represented by the area ABCD and constitutes the entire Quantity-Time factor of Investment to produce a unit of product. In the next place, when the work is done by the use of the machine, the total wage of the

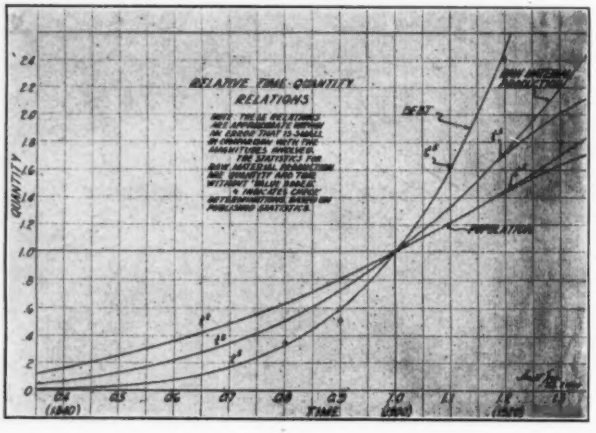

FIG. 9

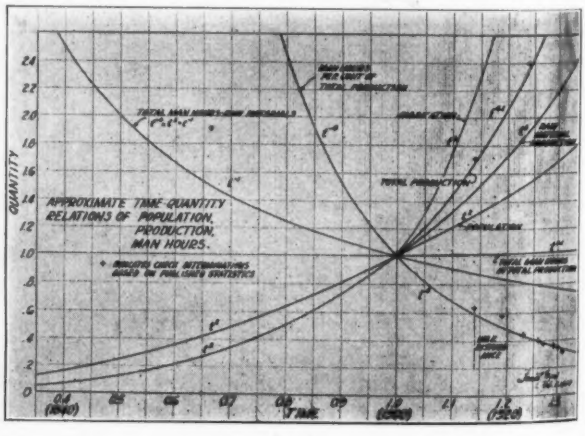

FIG. 10

attendant shrinks to the area ABFE, but there is an additional wage consequent on the use of the machine (indirect labor) represented by the area AGHF, or a total wage of BGHE. This may also include the increment of wage paid to the makers of the machine which is accounted for partially by depreciation write-offs. Beside the shift in the wage factor, we note an entirely new item represented by the area GIJH. The principal characteristic of this item is, that it is the primary factor in the *cost to possess*, (interest in its many forms), and that *it operates continuously* whether the machine is in operation and producing and wages are paid, or it is idle and there is no production and no wages are paid. And this is the nub of the matter.

Let us now examine some of the implications of this situation by comparing the relation of wage payments to the Quantity-Time factor. This Quantity-Time factor may now be translated as cost per unit of product, since it is the prime factor of cost. Thus we have under the hand labor system

Wage—$15.00; Cost—$15.00.

Under the machine system operating full time

Wage—$3½; Cost—$5.00.

Under the machine system operating part time, say 1/3 day in a 3 day period

Wage—$3½; Cost—$18⅓.

Thus we see that the never ceasing *cost to Possess* (interest in its various forms) operates *to increase* the cost per unit of product as the rate of production declines, while at the same time, the wage increment of unit cost *decreases*. With the decline in the wage increment there is a decline in total wages, and hence in purchasing-power at the time when unit costs have increased. Such a system does not tend to balance and technologically it is unstable and can only be adjusted by forces outside of itself and not originating within the system. Functionally such a system does not embody the elements of control. Under the operation of the principle of the diminishing Quantity-Time factor of Investment to produce a unit of product, modern industry tends to proceed from a stage of unit costs at varying rates of production 1—1 to the stage 2—2 as illustrated in Fig. 12. This illustration shows that while unit costs may be reduced from (a) to (b) at full capacity operation upon the mechanization of a plant, it occurs that unit costs are equal in both cases at (c) and for lesser rates of production are higher than before mechanization. Thus we see that there is a greater and greater tendency to lack of balance and adjustment between purchasing power as distributed through wages and the cost of the product which wages buys, as mechanization proceeds, and the rate of production falls. In this connection the history of debt (originating through mechanization as one source) in terms of interest and dividend payments, in relation to factory wages for the United States may be of interest.

This history is shown in terms of the index numbers

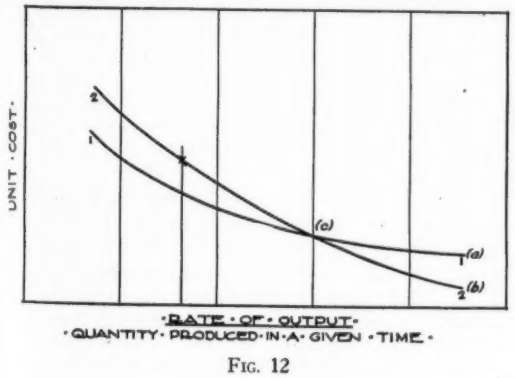

FIG. 12

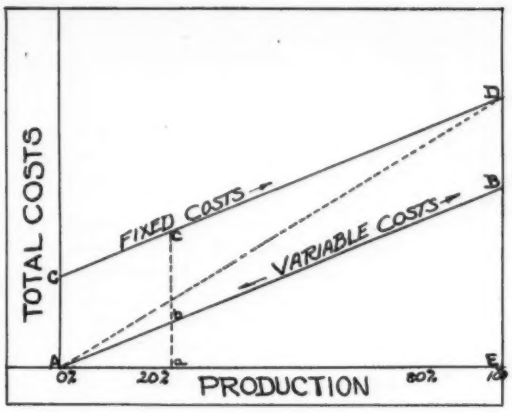

FIG. 13

of wage and dividend and interest payments in the U. S. for the years 1923-1931 in Fig. 9. The data for the charts are to be found in the Weekly Survey of Business prepared by the Chicago Journal of Commerce. Furthermore, and with particular significance, we note that the fixed charge or interest increment is due and payable regularly and in the same dollar amounts as volume of business declines costs rise, and margins of profit (if any) decline. Thus we note again the lack of self-balancing equipment and the persistent tendency to throw the system out of adjustment.

Finally we observe that the unit of measurement—the standard? gold dollar—in terms of which the debt is payable at regular intervals, is variable in terms of the goods produced. Therefore if the debt is paid in goods, it at one time is paid in units of one pair of shoes for example, and at another time in units of two pairs of shoes. Accordingly the technologist in all seriousness and frankness states that he cannot discover in this system of production, any elements of balanced control nor any basis of measurements by means of which such controls could be designed.

Now, that is due to the cost to possess. That is what we mean by saying that the relative claims of labor and capital to the goods produced, have been changed. You will note that as your productive capacity utilized becomes less and less, you have fewer and fewer workmen, so that the total wage distribution in the community for the whole factory is less. Therefore, your purchasing power declines directly with the capacity utilized, while the cost per unit of product increases. That is, you have less total purchasing power and an increasing cost per unit of product, against which that purchasing power has to be applied. And so, the technologist says there is nothing in that system that is self-balancing or self-regulatory. Therefore, the system will not work. Therefore, it has to be adjusted by hand operation. And that is what we are doing. The only hand operation we know about is to transfer ownership. The only way in which we can change a value is by writing it from one book into another book. And that is done through bankruptcy proceedings, receiverships, etc. That is why you see so much in the papers today in regard to changing our bankruptcy laws to expedite these transactions, so that we can bring down this burden of debt. That is why the Railroad Commission has paid so much attention to the burden of debt that has been piling up.

We have amortized, on the average, over a 50 year period, most of our equipment, while our obsolescence has been running for about 20 years. And so, for a long time before amortization is finally effected, the equipment on which the securities were issued has disappeared. So, we

have just kept piling up these securities and bond issues, one after the other, bearing their interest, bearing their charge, without having any justification in the physical factors underlying them.

That is why I say we have built up these various structures in our society without regard to their interdependent relationships one to the other. They must tie in. They must support each other if we are ever going to have any sensible system by which to work.

Finally, I would say that the problem which faces us is a problem of organization, fundamentally. We must learn how to organize ourselves and how to manage ourselves. It is a difficult problem, and because it is difficult it is most important. Therefore, we must seek for some basic principles upon which to organize ourselves.

Basic Principles of Organization

A Social Purpose

I would suggest that there are four basic principles which must be adhered to if we are ever going to have any success in an organized procedure. The first principle is that of purpose. The purpose of the organization must have high social value because a high social value is the only thing that will integrate a group. Why did we all get so excited during the War, and why did everybody pitch in and rush in, and everybody work together? Because there was given to us a consciousness of high social value of saving ourselves by this combined action. And so this great emotional response was had during the War because it had for us a high social value for this group. It was a means of salvation of our nation and of ourselves.

Now personally I think there was a lot of hokum about it, but we got the emotional response. I am simply talking now of the fact that there must be an emotional response in order to get people to work together and put their efforts together to work toward the same end. We do not have that now. What we need in American life today is the driving force of a high ideal. That is not impractical. It is the most practical thing that we can do, and anything that begins to debase the purpose of our national life, is all wrong. When people act selfishly, begin to center their interest around themselves, they do not promote a high national ideal. And that has been one of our great troubles. We have been thinking about ourselves and we have not been thinking about the nation as a whole.

We need a campaign to make this nation strong, and the only way we can make it strong is to forget our miserable little selves and our little businesses, and think in broader and more fundamental terms. No, it is not impractical.

A Program of Action

The second thing we need to accomplish is to define a program of action. You may have ever so high a purpose, but if you have not a common sense program that will work, you had better not have the purpose. It must be practical and it must be workable. That is the trouble with a great many groups. They get together, get into a big emotional frenzy and have a regular camp meeting out of it, and nothing happens; because there is no program, there is no basis, for which this energy can be released. Not only do you have to have a battery (and your emotions are likened very much to a battery) but you also have to have some sort of a power machine to which to switch that battery, if you are ever going to do any work. The only way you can discharge the battery otherwise is through a short circuit. Most group activities result in short circuits. You get up a big emotional response, but with no practical way of carrying out the program and the whole thing is frittered away just through short circuits.

Now, we believe that there is a factual basis upon which we can proceed to build up a strong national life. And that factual basis will have a great deal to do with our natural resources. We have certain limitations to our resources. You men ought to know that. I mean, for instance, in the way we have depleted our lumber supply. You know perfectly well how the forest lands have been depleted. In the early days we just simply cut wood. There was plent of wood and we started lumber mills and paper mills, here and there and yonder, without any regard to planting any new trees. Now there is a limit to our coal supply a limit to our iron ore, a limit to copper and a limit to all the natural resources we have. We have to recognize it and we have to find out the best way in which to use our natural resources.

Competent Personnel

The third element, I believe, is the most important of all, and that is the element of personnel. We cannot impose upon a civilization a pattern of life beyond its capacity to receive. Our society cannot establish itself on a high level if the members of society are not capable of living on a high level. We can have an excellent program for the reconstruction of Central Africa, we can have a very high purpose toward that reconstruction, but you cannot work it out with the pigmies.

Now, we have to develop a personnel which is capable of conceiving a high purpose and capable of defining a program, and capable of carrying it out. That is why we insist on the importance of all the educational agencies that are at work to build up personnel. And when I say education I mean education, and I do not mean indoctrination. There is a vast difference. Many so-called educational institutions are simply institutions for indoctrination. There is much difference between education and indoctrination.

The church, the school, the home, all institutions that interpret life and give it meaning are basic to our national life, and gentlemen, that is the most fundamental thing that is before us today. We cannot build up a high type of civilization unless we build up individuals who are capable of operating it.

There are two elements in personnel which I would like to emphasize at this time. The first is competence. People must be competent to do the work they are assigned to do or that they choose to do. Next, they must have a high sense of trusteeship. Competence and trusteeship of personnel is the most fundamental basic thing in business life today, and you know it. You know the strong organizations. The strong organizations are composed of men who know their business and men who can be trusted to carry out the spirit of the organization and not work in their own selfish interests. They are thinking in terms of the organization.

You might write it in terms of a formula. The success of an organization is equal to C over P, where C is the competence of the individuals and P is the degree of purpose with which they work. If they are 100 per cent competent and they have a single purpose, and that is the purpose of the group, the success of the organization will be 100 per cent. But if they are 50 per cent competent, only know half their job, and they are "so much for the business and so much for me," the degree of Purpose is two, and your success is 25 per cent. (Applause)

Property Values

The fourth element in an organized procedure is the element of property, the physical things we need to sustain us. It is essential to life but it is not the life itself.

And so I would say that these four elements are important in the order in which named and may be likened to a pyramid, with purpose uppermost and property values at the base. That is a stable situation. If we debase purpose, invert the pyramid, with property values uppermost

in the public consciousness, we have an unstable situation. And I don't have to cite very many examples in illustration.

How many religious organizations, to be perfectly frank with you, have you seen that have started out with a great high purpose in life, and have become so encumbered with the problems of organization and property, have become systems with which men make a living, that the whole problem and the whole energy is spent in maintaining the organization so that somebody may make a living out of it? It becomes purely a business organization and you wonder sometimes whether it is a business or whether it is a religion.

Now, every group of people has to guard themselves against those fundamental things that are sapping at the very vital things of life—because we are all human.

Did you ever realize that we spend 80-90 per cent of our time in strife and in combat, trying to make a living, trying to get something for ourselves and our dependents? And when we have it—we do not have it! All of the stuff that we accumulated—(I am using the editorial "we," understand)—prior to 1929, where is it? And we will do it all over again. It slides out from under us, and then we are looking for a rise in the stock market and away we go and try to build the thing up again. We are living more like animals than human beings.

I think that one of the basic things underlying all of our social disturbances is that man is endeavoring to cultivate his higher nature and he finds himself frustrated because of this continual strife all the time. We have adopted a pattern of life against which our inner nature rebels. We have been so burdened by the process of living, getting the material things of life, that we have never had the opportunity for developing the human spirit. And when all is said and done, when the last chapter is written, the big thing that we do get out of life is the development of personality. If we have not obtained that, we may as well not have lived at all.

Now, people are thinking about those things who never thought about them before. And I hope they will think long enough about them that they will leave an impression and it will motivate us to a more sensible basis of living. We must simplify the process of life, in order that we may live, that we may develop our higher natures, that we may really fulfill the purpose that is intended for us, and that is to grow into richer and greater personalities, and not like animals. Thank you. (Extended applause)

Discussion of Address

PRESIDENT ABRAMS: Gentlemen, by your applause you have shown your appreciation of Dr. Rautenstrauch's excellent talk. When we selected the speaker for this occasion we made up our minds that we would get a man who could give you a real message to take back, and now we admit success. I believe that Dr. Rautenstrauch's remarks should be the concern of our association and of each member in particular.

Now gentlemen, this meeting is yours. This problem is yours. We are going to give you a limited time so that you may have an opportunity to ask Dr. Rautenstrauch any questions on this subject.

G. A. MACLEM, Beloit Iron Works, Beloit, Wis.: I would like to ask the Doctor now to tell us what he would suggest, after we have given it some thought, as the next step beyond the thinking that he has asked us to do.

DR. RAUTENSTRAUCH: In other words, you want to know who is going to serve the meals during alterations. (Laughter). That is a very practical question. My recommendation is that the first thing to do is to bring down the burden of debt, because it is the wide spread between debt and wages that is causing the disturbance that we have today.

Might I give you an illustration. It is a dangerous thing to ask me any questions because you get me started. (Illustrating on blackboard) If you take the index number of interest and dividend payments in 1926, as 100, and factory wage payments as 100 naturally they will both be on the same level, as you compare them. About the middle of 1926 interest and dividend payments began to go up. Factory wage payment went down. That happened before the depression—about the middle of 1926. In 1926, the third quarter, factory wage payments were $2,700,000,000, while interest and dividend payments were about $1,060,000,000. Factory wage payments were 2½ times interest and dividends. In the third quarter of 1932, factory wage payments were $900,000,000—one-third as much. And interest and dividend payments have increased over 1926. So that they are now 1.8 times factory wage payments. Therefore, I say the burden of debt must be relieved.

A MEMBER: May I point out two things in connection with that: We are all fighting against bringing down the burden of debt because it means our personal ruination.

DR. RAUTENSTRAUCH: That has happened already.

A MEMBER: There is a second thing involved and that is at the present time bringing down the burden of debt promotes social injustice, in that investors in financial and other powerful interests are able to benefit from the deflation that takes place, and the weaker interests and personal elements are losing out.

DR. RAUTENSTRAUCH: How would they benefit?

A MEMBER: The big insurance companies have acquired vast quantities of farm lands in the West for instance, while the individual farmer is left without anything.

DR. RAUTENSTRAUCH: Well, if the burden of debt is relieved from the farmer, it would relieve the farmer, and the security to the widows and orphans who are depending on the insurance company (I am trying to get your point of view) would be lessened.

A MEMBER: I mean this: That the farmer as an American citizen, as a loyal and stable social influence, is being reduced. He does not have his farm any more. He is ruined. Whereas, your insurance company—and I am looking at it perhaps from a special point of view—and the large financial institution has its position in the long run increased or improved. When values improve, again, and when business improves, the insurance company has the farm and the farmer has nothing.

DR. RAUTENSTRAUCH: I don't get your specific question.

A MEMBER: My point is this: That bringing down the burden of debt is the thing that is going to ruin us as individuals. It is not really a question—it is a statement.

DR. RAUTENSTRAUCH: Then we will be advised by it.

A MEMBER: As an interesting sidelight that may or may not be important, we had a job in a nearby city. Among other features we had a boiler to erect. The superintendent on the boiler construction went to the Unemployment Relief Council in that city and asked, "How many men do you have on your list?"

"We have about 3000."

"Do you have them classified by trade?"

"Yes, we have."

"Well, I need some boilermakers."

And they said, "Well, we have five hundred or more boilermakers, on the list."

He made an appointment to meet eight that he selected from the list the next day, to make arrangements for starting work. Well, that morning, of the eight only one showed up, and he showed up only for the purpose of stating that for some reason or other he could not take the

job. It seems to me that a great many of them are looking for a hand-out and not for work.

DR. RAUTENSTRAUCH: They are not alone.

G. C. MACLEM: I would like to know a little more of the question I asked. That is to say, before we can move forward we have to get these people to work. How are you going to get them to work, in your way of thinking? Will wiping out that burden put them to work?

DR. RAUTENSTRAUCH: I don't think so. I am rather inclined to believe that when the debt pressure is relieved (and that, of course, cannot be done overnight but we simply have to work at it in the usual ways and perhaps unusual ways) there will come a return of public confidence. It will be possible to produce at lower cost, and that whole process will begin then what we call a revival in business. There would be other things that would naturally have to follow. It is not an easy thing to do. But we will have to readjust it. We will have to bring down the rate of interest, as one thing. We will have to bring down the base on which the interest is computed. But of all the things I should think that would be the first thing to do. However, I do not see any immediate way in which we can bring people back to work.

G. E. MACLEM: It is the kernel of the nut.

DR. RAUTENSTRAUCH: The important problem.

R. B. WOLF (Weyerhaeuser Timber Co., Longview, Wash.): Do you think that making more of these laws available to our conscious minds will prevent this thing from recurring again? Is that the purpose for which you are accumulating these records?

DR. RAUTENSTRAUCH: That is one of them. To give an illustration of what use a growth curve could be to an industry, suppose that the financing of an industry was under consideration. It might be possible, through regulation, to require that all those who are soliciting public funds for the building of factories relating to that particular industry should give full and complete and intelligent information on the growth curve of that industry, where the industry stands on that growth curve and how much productive capacity there is now to supply the product. And you could see that it was either one and a half or twice, or three times, over-built—or whatever it might be.

Then second, I would say there ought to be a statement of the economic characteristics of the particular company for which the funds are being sought. That can be expressed in very simple terms. It can be shown graphically if necessary. So that out of an informed public opinion you would bring about some of these self-regulatory features. But education is a long process and it is a costly process, and the horse may die before the grass grows.

F. W. ADAMS (Massachusetts Institute of Technology, Cambridge, Mass.): You mentioned the fact that the cost to possess, in time of low production, increases all out of proportion to the wages paid the workers. You also mentioned the fact that there were going to be, and had been, various bankruptcy proceedings and receiverships and so forth to lower the amount of the cost of possessing. Is the lowering of that amount going to produce a self-regulating condition?

DR. RAUTENSTRAUCH: No. It is not. The lowering of that amount will not produce a self-regulating condition. It just means that we have knocked the props out and got it down to a stable base and it will grow up until we knock the props out again. I am rather inclined to believe we will have to make investments at the risk of the business, in fact, just as labor is at the risk of business. You get my point?

J. W. ADAMS: Is there some way of introducing into the picture some factor which will make that curve self-regulating?

DR. RAUTENSTRAUCH: There is. You have in general two kinds of costs in manufacturing; those that vary with your volume of production or your rate of production, and those that are fixed regardless of your rate of production. In Fig. 13 are shown your variable costs AB and your fixed costs CD ride over those like this, always being a constant level AC above your variable cost. That is to say, at 100 per cent productive capacity, your total variable cost, (not cost per unit of product) is EB largely material and labor, while your constant total costs are BD. At 25 per cent production, variable costs are (ab) and constant total costs are the same (bc-AC). Now, that causes your cost per unit to vary as I showed you a moment ago, that is why your cost per unit of product rises as the capacity utilized decreases. This may be done by changing the capital structure from the fixed interest and fixed dividend type of security to the common stock type with interest payable only if, as and when earned.

MEMBER: Is that not practically what has happened in Europe due to capital structure and ownership of the business?

DR. RAUTENSTRAUCH: We had more common stock type of securities than we had the fixed and interest type.

MEMBER: We had maladjustment like that before this capital structure came about, so that that alone can't be the answer.

DR. RAUTENSTRAUCH: You have raised children? Well, they first get sick and have measles, and the next time they are sick they do not have measles but they have chicken-pox. And the next time they are sick they have something else. That is just what we are doing. We are in the chicken-pox stage now, perhaps. But just because we got out of a difficulty before, or we had a difficulty before when this was not present, does not mean that this is the cause of the situation. Do I make myself clear?

MEMBER: There must be a good many more super-imposed on it.

DR. RAUTENSTRAUCH: The equation is rather involved. We have to take them one at a time.

C. J. MACARTHUR (consultant, Glen Ridge, N. J.): There is one question I would like to ask. During the last decade ten thousand of our banks suspended operations. That is actually one-third of all the banks in the United States. Now, under the stress of circumstances during the short period of the last three years, it is partly explained why this occurred, but it does not explain it all, because, as a matter of fact, 53 per cent of our failures occurred during the prosperous period, in fact, the most prosperous period in our existence. Nor does it explain why Great Britain and Canada are having similar or worse conditions and yet not one bank failed in Great Britain, and only one failed in Canada and that was in 1923. Can it be better explained why that difference exists?

DR. RAUTENSTRAUCH: It is a long story, but I might give you some pointers. First, Section 88 of the National Banking Act of Canada provides that any manufacturer can go to the Royal Bank of Canada and upon showing so many thousands in receiveables which are good, and so much inventory which is quick moving, he can borrow up to 75 per cent. It provides that the Canadian banks shall have available credit for commercial loans, which they do. Some 85 per cent of their deposits are available for commercial loans. We have no such law, with the result that only about 35 per cent is available for commercial loans; and the rest of it, the vast majority of it, is in good collateral loans, with a question-mark after the "good".

But we have been supporting the investment market more than we have been supporting commerce or the movement of goods, and I think that is one of the fundamental difficulties in our banking situation.

G. A. MACLEM: I wanted to ask another question. Some of our large industries have a feeling that by shortening the hours and getting the masses working again some place or other is the first step toward this readjustment. As a scientist do you believe that?

DR. RAUTENSTRAUCH: I do not think there is anything to it, because it is shifting the burden to labor which is already over-burdened and is detracting attention from the main problem which is our debt structure. It is a red herring across the trail, and do not be deceived by it.

Second, I would say that all those people who give second-rate Fourth-of-July orations about the greatness of the country, and that we need a new industry, and that sort of stuff, to put it in the language of the street, is a lot of bologna. I say that for this reason: It again detracts attention from the main issue. If we had new industries we would have to integrate those industries again with the old industries, and it is the lack of coordination and integration which has brought us into this difficulty. We have a 1000 h.p. boiler and two bushels of coal to burn under it, and cannot even get the plates warm.

J. S. LITTLE (Western Electric Co., Kearny, N. J.): I have two questions, first, what is your solution, if you have any solution on how are we going to get rid of this debt? And the second question is, in your curve, is there any possibility of determining the point of inflection with any degree of accuracy?

DR. RAUTENSTRAUCH: I will answer the second question first. It is possible to determine that with a considerable degree of accuracy, that is within two or three years, which is quite good for that kind of curve. And just to add a little more along that line, we find that these inflection points have occurred in many of the industries between the periods of 1900 and 1920, long before the depression struck us.

J. S. LITTLE: If you started an industry, say at the present time and you found the bottom of this curve, could you predict where the point of inflection would occur?

DR. RAUTENSTRAUCH: It would be impossible. No, I could not.

Now, as to your first question, regarding the relief of the burden of debt, that has to come about through a number of actions, and I think such an action as was taken by the Railroad Commission in its report yesterday is one of the first movements. There will probably be serious conferences about this thing and people will look each other in the face, and say, "Let us be sensible about this thing and write the values down to somewhere near where they belong, and then start over again."

And then, the farm question is more or less solving itself. These farmers, you know, are a shirt-sleeve group and they do not stand much nonsense. They are reducing their mortgages all right. I happen to have been born and raised out in that country and I know what they do when they start to do something. They do not fool themselves very much about it, either. So that through these various actions, two of which I have indicated, there will come a readjustment of the debt burden.

JACOB EDGE (Downingtown Manufacturing Company, Downingtown, Pa.): What is to become of the people living on the farms?

DR. RAUTENSTRAUCH: It would be difficult to make an adjustment which would not affect somebody adversely, and it is impossible to make any reconstruction without doing somebody injustice. That is true. You cannot make a 100 per cent solution of the problem so that nobody is hurt. But our greatest problem, our big problem, is what is the greatest good for the greatest number? You must remember that there are over 15 million people out of work today and in want and misery. Did you ever go around and see some of these people? I have. And I tell you there is much want and misery. I know a minister in this town who has not had his salary paid since a year ago last October, and the people in his congregation are in misery and want. I know people who are living four and five in one room, and the girl in the family is the only one supporting them, and she is getting 15 dollars a week. I would think more about those people than anybody else.

J. A. DECEW (Process Engineers, Inc., Mt. Vernon, N. Y.): If the improvements resulting from technological developments in the last twenty years, have gone into profits and dividends, would it not explain the building up of this structure?

DR. RAUTENSTRAUCH: It would explain a great deal of it. One of the ways in which to express this unbalanced situation is that there has been entirely too much productive capacity created, not for the purpose of creating productive capacity, but for the purpose of creating securities. And that has been in excess of our requirements.

Now, there have been a number of forces acting. Take, for example, the question of deferred payments. That has had a very bad economic influence, with all due respect to my distinguished colleague, Prof. Seligman, to the contrary notwithstanding. When people were spending their money, before the general use of the deferred payment plan, they were spending current income. The minute that plan came into general use, they were spending current income plus deferred payments. Now, that caused an artificial stimulation in the issuance of securities and the doing of all kinds of things which were unnecessary to do at the time. Factories were enlarged, securities issued, buildings were built, roads were built, all this false prosperity was created —or a great deal of it. All right, when these bills came due, what was your purchasing power? Current income had to be applied to paying the bills. See? And so your purchasing power became current income minus deferred payments. And there you had a differential over a short period of time, of pretty near twelve billions of dollars in purchasing power. And that was a very bad factor in our whole situation.

J. A. DECEW: I have heard it stated that the chemist and engineer are responsible for this whole situation—by making everything more efficient. The technical man probably is responsible because the profits from his inventions and discoveries have not been distributed but have only increased capital.

DR. RAUTENSTRAUCH: You remind me of a friend of mine who, in all seriousness, said to me, when we were talking of the early days, "You know, modern science has certainly encumbered us with a lot of diseases. We didn't have those diseases when we were boys." Well now, many people of course have made false statements in regard to the engineer, and that he was responsible, and that sort of thing. But I think we all realize the fact that technological development has gone beyond the capacity of people to integrate it into society, and it is not due to the fact that technological development has come, but due to the fact that we have not been able to gear it into our social system.

G. A. MACLEM: We have not been willing.

DR. RAUTENSTRAUCH: We have not done it. That is the practical thing, and there again is the old spirit of exploitation. We have been thinking in terms of ourselves —that here is something to make some money out of, and we will capitalize this thing, and put a burden on it, and

increase the fixed charges and it is fine—and everybody goes along merrily until somebody has to pay the bill.

A MEMBER: As the machine increases the productive capacity of the individual man, how can his consumptive capacity be increased to keep step with the machine?

DR. RAUTENSTRAUCH: The answer is that it cannot.

A MEMBER: Why not? It is purely an economic situation.

DR. RAUTENSTRAUCH: Oh no. The point is that you have certain material satisfactions. You are satisfied with those material satisfactions as a rule, and cannot take on any more. There is a limit to what you can absorb physically and enjoy.

A MEMBER: We are so far from that limit. None of us has anywhere near reached the saturation point of our wants. (Applause) Before the doctor gets started, let me make a statement from the PAPER TRADE JOURNAL, which will lend point to my question: In a ten year period in Canada—and I think these figures are approximately correct—the value output of pulp increased from $100,000,000 to $215,000,000. The wages paid to labor did not increase by a cent. In other words, the productive or purchasing power of labor over that period was not increased. Now that is worse than the mere figures indicate because in that period the population increased. So, what I am driving at is this: There was an increase in the productive capacity of industry, which was not passed on in consumptive power to labor. Now my question is this: How can that increased capacity of industry be passed on?

DR. RAUTENSTRAUCH: That is a good question. The point is, if you will not burden the costs with your fixed charges, out of proportion to your wages, then you will have a normal, healthy growth and I would suggest this type of total cost line, AD (Fig. 13) rather than this type, CD (Fig 13). Does that make it clear? Then you will have a better distribution of your purchasing power through wages, in relation to your total cost, and it would not surprise me one bit if we should change our economic practices in some respect like this—that these growth curves which you see (and they are all limited by the economic practices we are engaging in) may have a second growth curve.

Now, that thing happened with the German people, for example. The growth curve for the German Empire had a given maximum and in the year 1850 Germany became industrialized and found out how to use her iron ore and began to introduce machinery, so as to change the process by which she could convert raw materials into use forms; and as a result of that she experienced a second growth curve which enabled her to sustain a larger population on the same area, that is to reach a higher maximum.

Now, if we are able to adjust our economic practices so that we can all enjoy more of the material things of life in proportion to the rate at which they are being produced, these growth curves which are indicated for certain industries like this may take a second growth. That may be possible, all, however, subject to the limitations of the raw materials available to us.

Now I want to say here that the greatest problem before the nations of the world today is the problem of raw materials supply. You can have all the hands across the sea, gentlemen, that you want. You can have all the fine words, and all the nice cablegrams back and forth on birthdays, and that sort of stuff; but the main thing is, that the Japanese people want certain iron ore and coal, and they are going to get it. And there are other nations that want certain minerals and they are going to get them. And there are other countries that are after a certain amount of business that we are after, in what we call the undeveloped countries, and we are going to clash with them. So that we must, to actually save our civilization, get together on some cooperative basis so that we can make an intelligent use of the materials we have, and to use the materials of the world on some cooperative basis. Otherwise we are going to have this continual conflict and clash all the time. That is the biggest problem before us today, and you can have all the legislation and all the agreements that you want signed, galore. But the fundamental thing is that people, in order to maintain a certain civilization, have got to have certain minerals and energy resources to do it with. And they are going to reach out and get them regardless of all the documents and fine words and parties, and everything else.

PRESIDENT ABRAMS: I would like to tell Dr. Rautenstrauch before he leaves, that we had as a guest today a man who is a pioneer in the electrical industry and who assisted in building up one of the largest utility companies in the country. He came with many doubts but a few minutes ago, told me that he had a four o'clock engagement, and that he would give fifty dollars if he did not have to go. You can judge for yourself whether he enjoyed the program! All those present arose and applauded in tribute to Dr. Rautenstrauch, as he left the platform.

Savannah Meeting to Feature News Print

Interest is growing rapidly in the development of a wood pulp and white paper industry in the Southeast. Reservations are being received daily from those who are taking the special Paper Makers Cruise from New York to Savannah on Friday, April 28th.

The Soperton, Georgia, News issued an edition last week printed on news print paper made at the Savannah Experimental Paper Mill of the State of Georgia. The printers were enthusiastic in praise of the results, particularly in regard to the way that the paper took the ink. Copies were sent to President Roosevelt, who has been much interested in the project. The paper was made entirely from local slash pine trees, none of which were more than seven years old.

The program for the meeting is nearly completed. The paper makers will arrive in Savannah on Monday morning, May 1st. After breakfast on board ship, the party will be taken to the De Soto Hotel to attend the meeting of the Georgia Forestry Association. At this meeting, W. G. MacNaughton will report his results obtained in cooking pine by the sulphite process and in grinding pine for use in news print paper manufacture. C. W. Boyce, executive secretary of the American Paper and Pulp Association, will discuss regional pulpwood resources and will emphasize the part that the Southeast may expect to play in the future development of the industry. Monday afternoon will be spent at the experimental paper mill where all the records of work will be open for inspection.

On Tuesday the entire party will be taken on a 150 mill tour to see various woods operations, saw mills, turpentine plants and reforestation projects.

The social side of the meeting will be unusually interesting. An elaborate program of entertainment, featuring native talent will be put on. There will be an opportunity to play golf and to enjoy sea bathing. Savannah is delightful early in May and the weather is usually good. An enjoyable program is being prepared for the ladies, a large number of whom are planning to take the trip.

Reservations will be received until all the accommodations on the S.S. *City of Montgomery* have been filled. About seventy have indicated their intention of going. The entire cost of the boat trip including stateroom, meals and round trip transportation is but $25. All reservations must be made with R. G. Macdonald, Secretary of TAPPI, 370 Lexington avenue, New York.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING APRIL 8, 1933

CIGARETTE PAPER

American Tobacco Co., Pr. Harding, Havre, 650 cs.; Standard Products Corp., Pr. Harding, Havre, 29 cs.

WALL PAPER

J. W. Hampton, Co., J. Jadot, Antwerp, 2 bls.; R. F. Downing & Co., Sanyo Maru, Kobe, 7 bls.; F. J. Emmerich, Deutschland, Hamburg, 2 cs.; Meadows Wye & Co., Pr. Harding, Havre, 1 cs.

NEWS PRINT

Perkins Goodwin & Co., Chemnitz, Bremen, 66 rolls; Perkins Goodwin & Co., Dresden, Bremen, 66 rolls; W. H. Bell, Markland, Liverpool, N. S., 3,157 rolls; Baldwin Paper Co., Deutschland, Hamburg, 60 rolls; ——, Stavangerfjord, Oslo, 364 rolls; ——, Stavangerfjord, Oslo, 22 rolls; Perkins Goodwin & Co., Pr. Harding, Hamburg, 135 rolls.

PRINTING PAPER

Freedman & Slater, Dresden, Bremen, 3 cs.; F. C. Strype, Deutschland, Hamburg, 72 cs.

WRAPPING PAPER

Van Oppen & Co., Pr. Polk, Genoa, 10 cs.; F. C. Strype, Westernland, Antwerp, 4 cs.; Walker Goulard Plehn Co., Pr. Harding, Hamburg. 269 rolls.

PACKING PAPER

Wilkinson Grey & Co., Westernland, Antwerp, 117 bls., 7 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., Amer. Farmer, London 2 cs.; A. Giese & Son, Aquitania, Southampton, 60 bls.

DECALCOMANIA PAPER

Sellers Transportation Co., Europa, Bremen, 9 cs.; L. A. Consmiller, Europa, Bremen, 8 cs.; Rohner Gehrig & Co., Europa, Bremen, 11 cs.; Sellers Transportation Co., Deutschland, Hamburg, 12 cs.

BASIC PAPER

Globe Shipping Co., Chemnitz, Bremen, 26 cs.; F. C. Strype, Chemnitz, Bremen, 13 cs.

PHOTO PAPER

Medo Photo-Supply Co., Aquitania, Southampton, 1 cs.; American Express Co., Deutschland, Hamburg, 3 cs.

METAL COATED PAPER

Massce & Co., Chemnitz, Bremen, 3 cs.; National City Bank, Dresden, Bremen, 20 cs.; Hensel Bruckman & Lorbacher, Dresden, Bremen, 21 cs.; K. Pauli Co., Dresden, Bremen, 23 cs.; A. C. Rempert, Europa, Bremen 3 cs.; National City Bank, Deutschland, Hamburg, 6 cs.; K. Pauli Co., Deutschland, Hamburg, 9 cs.

SURFACE COATED PAPER

Hensel Bruckman & Lorbacher, Dresden, Bremen, 5 cs.; P. C. Zuhlke, Westernland, Antwerp, 4 cs.; Gevaert Co. of America, Westernland, Antwerp, 2 cs.

COLORED PAPER

F. Murry Hill Co., Deutschland, Hamburg, 3 cs.

SILK PAPER

Van Oppen & Co., Excambion, Marseilles, 17 cs.

TISSUE PAPER

Columbia Carbon & Ribbon Manfg Co., Amer. Farmer, London, 1 cs.; W. J. Byrnes, Britannic, Liverpool, 9 cs.; ——, C. di Savoia, Genoa, 26 cs.

ENVELOPES

Beckhard Simfred Co., Dresden, Bremen, 10 cs.; Japan Paper Co., Dresden, Bremen, 5 cs.

WRITING PAPER

Rohner Gehrig & Co., Aquitania, Southampton, 1 cs.

SULPHITE BOARD

Zenith Paper Co., Deutschland, Hamburg, 6 cs.

CARD BOARD

G. M. Thurnauer Co., Westernland, Antwerp, 3 cs.; American Express Co., Pr. Harding, Hamburg, 140 cs.

MISCELLANEOUS PAPER

J. Romer, Bordeaux Maru, Kobe, 13 cs.; Corn Exchange Bank Trust Co., Bordeaux Maru, Kobe, 13 cs.; Manufacturers Trust Co., J. Jadot, Antwerp, 50 bls.; Keller Dorian Paper Co., Aquitania, Southampton, 4 cs.; Corn Exchange Bank Trust Co., Sanyo Maru, Osaka, 40 cs.; Heemsoth Basse & Co., Europa, Bremen, 3 cs.; Zellerbach Paper Co., Europa, Bremen, 2 rolls, 3 bls.

RAGS, BAGGINGS, ETC.

Guaranty Trust Co., Maria, Trieste, 43 bls. rags; C. Nelson, Cameronia, Glasgow, 27 bls. rags; A. Rivery & Co., Indep. Hall, Havre, 13 bls. rags; Banco Coml Italiane Trust Co., Black Heron, Rotterdam, 73 bls. rags; E. J. Keller Co. Inc., Excambion, ——, 183 bls. rags.

OLD ROPE

E. J. Keller Co. Inc., Amer. Farmer, ——, 74 coils; E. J. Keller Co. Inc., Marengo, ——, 84 coils; ——, Pr. Harding, Hamburg, 40 bls.

GLUE STOCK, ETC.

—, Chemnitz Bremen, 100 bags hide glue; ——, Dresden, Bremen, 210 bags hide glue; ——, Deutschland, Hamburg, 106 bags hide glue; ——, Deutschland, Hamburg 100 bags bone glue.

CASEIN

——, Westernland, Antwerp, 30 bags.

WOOD PULP

Irving Trust Co., Chemnitz; Bremen, 500 bls. mechanical pulp; Irving Trust Co., Dresden, Bremen, 500 bls. mechanical pulp; Castle & Overton, Inc., Deutschland, Hamburg, 560 bls. wood pulp, 112 tons.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 8, 1933

Hoffman Lion Mills, Tai Ping Yang, Kobe, 100 bls. rags; E. J. Keller Co. Inc., Examelia, ——, 90 bls. rags.

NORFOLK IMPORTS

WEEK ENDING APRIL 8, 1933

—— Chr. Sass, Barcelona, 70 bls. bagging; E. J. Keller Co. Inc., Wytheville, ——, 100 bls. bagging.

GALVESTON IMPORTS

WEEK ENDING APRIL 8, 1933

Parsons & Whittemore, Inc., Nishmaha, ——, 150 bls. sulphite.

B. C. Pulp & Paper Co. Report

Operations of British Columbia Pulp and Paper Company, Ltd., in 1932 resulted in a loss of $76,206, as contrasted with operating profit of $363,466 in 1931, according to the company's statement.

Payment of bonds interest of $303,389 and taxes of $258 increased the deficit to $379,852 for the year. Surplus account brought forward from 1931 showed debit balance of $142,348, with total deficit in surplus account at the end of 1932 standing at $522,202. No provision for depreciation was made for the year.

Working capital is lower at $712,465, compared with $1,002,033. Current assets are valued at $958,397, and current liabilities at $245,933. Total assets of $8,699,525 contrast to $8,565,352. Funded debt is unchanged at $4,766,400, sinking fund payment having been waived.

Swedish News Print Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1933.—Swedish news print production during the month of February totaled 17,546 metric tons against 18,727 tons in the preceding month and 23,234 tons during the month of February of last year.

Making Improvements at Camas

The Crown-Willamette Paper company's tissue plant at Camas, Wash., is undergoing alterations. The structure is being raised and a ground floor installed to provide 10,000 additional square feet of floor space.

Converted Paper Products, 1931

WASHINGTON, D. C., March 15, 1933.—The Bureau of the Census announces the publication of a special report on the manufacture of converted paper products in 1931, compiled from returns received at the biennial census of manufactures taken in 1932. This report covers the output of converted paper products made in the following-named industries: Bags, paper, exclusive of those made in paper mills; boxes, paper, not elsewhere classified; cardboard, not made in paper mills; card cutting and designing; envelopes; wall paper; paper goods not elsewhere classified.

The values of the several classes of converted paper goods made as secondary products by establishments classified in other industries are also included.

The total value of converted paper products manufactured in 1931 amounted to $633,800,932, a decrease of 22.4 per cent as compared with 816,367,083 (value of manufacturers' sales) reported for 1929.

The figures in this table cover the output (actual production in 1931 and shipments or deliveries by manufacturers in 1929) of the specified commodities, so far as separately reported to the Bureau of the Census, both by those manufacturers who made them as primary products and by those who made them as secondary products. The figures for a given commodity or class of commodities as they appear in this table are not, therefore, identical with the "values of products" given in the preliminary reports, published in 1932, for the industries in which they are made as primary products.

Class and type	Value 1931	Value 1929
Aggregate	$633,800,932	$817,725,047
Bags, paper, total	61,575,890	79,124,252
Kraft	46,271,015	63,884,477
Other	15,304,875	15,239,775
Bottle caps, paper	6,889,745	5,523,755
Boxes and containers, paper and paperboard, total	260,161,425	346,446,958
Shipping containers, corrugated	78,321,379	97,959,464
Shipping containers, solid-fiber	27,300,406	42,035,357
Cartons and folding boxes	75,307,335	95,726,976
Set-up paper boxes	60,519,780	85,382,513
Paper cans	11,179,183	13,023,526
Decorated, lithographed, lacquered, and fancy covered boxes	2,919,006	6,600,125
Other boxes and containers	4,614,336	5,718,997
Cards cut and designed, total	15,197,373	16,104,053
Index, library, etc., cards, plain	3,831,789	3,640,527
Jacquard cards for textile-fabric machines	495,325	476,304
Photograph mats, mounts, folders, etc.	3,371,370	5,222,592
Other	7,498,889	6,764,630
Cardboard	4,205,291	6,937,388
Coated book paper	33,398,853	49,514,438
Confetti	77,615	61,016
Crepe paper	3,031,488	5,003,664
Cups, paper	12,117,287	10,713,637
Dishes, spoons, etc., paper	3,851,952	6,113,115
Envelopes, total	44,156,880	57,657,514
Writing	14,483,243	22,128,068
Kraft	6,996,457	9,539,711
Other	22,677,180	25,989,735
File folders	1,171,460	(1)
Glazed and fancy paper	7,053,074	10,575,108
Gummed paper and tape, total	8,778,886	13,025,734
Gummed flat paper	1,787,290	2,247,730
Gummed paper tape	3,831,579	6,125,077
Gummed cloth tape	3,160,017	4,652,927
Lace, paper	2,127,989	2,152,334
Napkins, paper	6,337,307	6,899,617
Papeteries [2]	6,186,691	17,459,242
Rolls, paper (for adding machines, etc.)	1,885,299	1,768,206
Tablets	6,900,588	9,446,543
Toilet paper	25,444,227	25,323,220
Towels, paper	7,857,541	8,035,657
Tubes, paperboard	3,412,348	6,087,140
Twisted paper (cord, twine, etc.)	148,857	424,782
Wall paper	20,189,360	30,004,881
Waterproof wrapping paper	3,213,439	3,259,295
Waxed paper	34,034,660	35,464,098
Other converted paper and paperboard products [3]	54,395,407	64,599,400

[1] Not called for separately on the schedule.

[2] Papeteries are primary products of the "Stationery goods, not elsewhere classified" industry but are made to some extent also as secondary products by establishments classified in certain of the converted paper products industries. The items here given represent the total production in all industries.

[3] Includes (1) cigarette paper, playing cards, roofing paper for 1931 and for 1929; also paper patterns, other than printed or lithographed, and unprinted tags for 1931; and (2) miscellaneous paper products not specifically reported by kind.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, April 12, 1933.

Trading in the local paper market was only moderately active during the past week. While demand for the various standard grades of paper was light, however, the industry, in general, continues optimistic. Sales forces of the leading paper organizations are campaigning for new orders and express confidence over the future.

Some improvement was noticed in the demand for news print paper. Following the return of legal beer, newspaper advertising was substantially increased by the space requirements of the brewers. Production in the United States and Canada is being maintained in sufficient volume to take care of current needs. The price situation is unchanged.

Demand for the various grades of paper board is persistent. The heavy request for containers from the beer industry continues. Box board quotations are firm. The fine paper market is displaying a strong undertone. Tissues are moving freely. The coarse paper market is fairly active and kraft wrapping paper is steadier.

Mechanical Pulp

Business in the ground wood pulp market is rather quiet. Prices are generally steady, however, and the industry is in a sound statistical position. No. 1 imported dry mechanical pulp is now quoted at from $19 to $21 per ton, on dock, Atlantic ports. No. 1 domestic and Canadian ground wood is selling at from $14 to $22 per ton, f.o.b. mill.

Chemical Pulp

Steadiness prevails in the chemical pulp market. With the exception of one or two instances, prices remain unchanged. No. 1 strong unbleached imported sulphite is now offered at from $1.40 to $1.60, on dock, Atlantic ports. Domestic and Canadian easy bleaching sulphite is selling at from $1.60 to $1.75, f.o.b. pulp mill.

Old Rope and Bagging

The old rope market continues dull. Paper mill demand for both domestic and imported old manila rope is restricted. Small mixed rope is reported to be moving in fairly satisfactory volume. Prices remain unchanged. The bagging market is firmer. Demand for both scrap and gunny bagging is fairly active. Roofing bagging is also arousing more interest.

Rags

Conditions in the domestic rag market are little changed. The request for cotton cuttings, however, is slightly better. Some European demand has been experienced for No. 1 white shirt cuttings. Roofing grades are seasonally active, with quotations firmer than of late. The imported rag market is still affected by the foreign exchange situation.

Waste Paper

The special feature of the paper stock market during the past week was the improved demand for books and magazines. Offerings are somewhat limited and quotations much firmer. Stitchless flat stock is now quoted at from .65 to .70 and overissue magazines are selling at the same figures. Solid flat book stock is offered at from .55 to .65 and crumpled No. 1 at from .45 to .50, f.o.b. New York.

Twine

No radical changes were reported in the local twine market. While most of the demand at present is along routine lines, the approach of the Easter season has resulted in some expansion of trading. Prices of the various grades of twine are holding up well, despite the usual keen competition for desirable orders.

SIX HOUR DAY SOUGHT

(*Continued from page 15*)

ern Canada with a view to stabilizing prices, was that all tonnage was to have been distributed as far as possible according to rated capacity of the different mills, and that the average net price per ton received by each mill f.o.b. was to have been determined monthly and appropriate adjustments made so that each mill was to have received the same net mill price for its output. Price Brothers claimed that under this agreement members of the institute collectively owed the company $750,466.92 as at December 31, 1930, plus interest of $36,695.75.

In dismissing the case the court holds that Price Brothers, as claimed by defendants, committed a breach of its obligations under the agreement by offering contracts to various consumers, and concluded these contracts in contravention of the terms of the agreement between member companies of the institute.

Straw Paper Plant at Edmonton

Further details are now available regarding the proposed straw paper plant at Edmonton, Alberta. Backed by city, provincial and other officials and private captial plans are now under way to construct a plant at Edmonton to make paper from wheat and flax straws. It is stated there is a possibility the plant may be the first unit of a number to be constructed in Canada and the United States. It would absorb much of a product now going to waste in agricultural districts.

An experimental plant, constructed under direction of George K. Guild, who came to Alberta from Scotland at the suggestion of provincial officials, has proven successful in operation, it is stated.

The method of making paper is said to be much simpler than by the wood pulp process as no acid treatment is required. The principle is similar to that used in the manufacture of paper from Esparto grass and similar fibres.

Flax straw is added to the wheat to give strength to the product. A caustic, or common washing soda, is practically the only chemical required to treat the fiber. The two straws are cooked separately, then reduced to a pulp, and run through a paper machine to form the finished paper.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, April 12, 1933.

BLANC FIXE.—No radical changes were reported in the blanc fixe market. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market continues listless. Shipments against contract are moving slowly. Prices are generally holding to previously quoted levels. Bleaching powder is selling at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is steady. Domestic standard ground is quoted at from 7½ to 8 cents and finely ground at from 8½ to 9 cents per pound. Argentine standard ground is selling at 9 cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is only moderately active. The contract movement is seasonal. Solid caustic soda is still quoted at from $2.55 to $2.60; while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Prices are holding to schedule. Imported china clay is selling at from $10 to $15 per ton, ship side; while domestic paper making clay is offered at from $5 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. Shipments against contract are going forward in good volume. Quotations are holding up well. Chlorine is selling at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is fairly active. The grades of gum rosin used in the paper mills are quoted at from $3.70 to $3.90 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.75 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Request for salt cake is fairly persistent. Prices remain unaltered. Salt cake is quoted at from $12.50 to $13.00; chrome salt cake at from $11.50 to $12.50 per ton, at works. Imported salt cake is selling at from $12.50 to $13.00 per ton, on dock.

SODA ASH.—The soda ash market is marking time at present. Demand from the paper mills is somewhat restricted. Prices remain unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Conditions in the starch market are improving. The contract movement is well up to average. Prices are firmer. Special paper making starch is now quoted at $2.34 per 100 pounds, in bags; and at $2.61 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Trading in the sulphate of alumina market is moderately active. Prices are generally holding to schedule. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Domestic talc is still quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $18 to $22 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.75	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	4.25	@	5.00
M. F.	3.75	@	4.25
Coated and Enamel	5.00	@	9.00
Lithograph	5.00	@	9.00
Tissues—Per Ream—			
White No. 1	.50	@	.70
White No. 2	.45	@	.60
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.50	@	4.75
No. 2 Domestic	2.75	@	3.00
Southern	2.62½	@	3.00
Imported	2.75	@	3.50
Boards—per ton—			
News	32.50	@	35.00
Straw	29.50	@	31.50
Chip	30.00	@	32.50
Binders Boards	62.00	@	70.00
Kraft Liner	40.00	@	45.00
Standard 85 Test			
Jute Liner	27.75	@	30.00
Sgl. Mla. Ll. Chip	37.50	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	18.50	@	20.00
Dry	19.00	@	21.00

(F. o. b. Mill)

No. 1 Domestic and Canadian	14.00	@	22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.80	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.40	@	1.60
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.25	@	1.40
No. 2 Kraft	1.10	@	1.15
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.60	@	1.75
News	1.40	@	1.65
Mitscherlich unbleached	2.00	@	2.25
Kraft (Domestic)	1.25	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	3.80	@	4.00
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.25	@	4.00
New Unbleached	5.25	@	5.75
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.25	@	1.50
Washables	1.00	@	1.25
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.30	@	1.40
New Mixed Cuttings	1.50	@	1.60
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.50	@	5.00
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	.90	@	1.00
Domestic	1.00	@	1.10
Wool Tares, light	.70	@	.80
Wool Tares, heavy	.70	@	.80
Bright Bagging	.70	@	.75
Small Mixed Rope	.50	@	.60
Manila Rope—			
Foreign	1.35	@	1.40
Domestic	1.40	@	1.50
New Burlap Cut	1.00	@	1.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.00	@	2.10
Ordinary Hard White No. 1	1.70	@	1.80
Hard White No. 2	1.50	@	1.60
Soft White No. 1	1.45	@	1.55
Flat Stock—			
Stitchless	.65	@	.70
Overissue Mag	.65	@	.70
Solid Flat Book	.55	@	.65
Crumpled No. 1	.45	@	.50
Solid Book Ledger	1.30	@	1.40
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.35	@	1.45
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.65	@	.75
News—			
No. 1 White News	1.00	@	1.05
Strictly Overissue	.50	@	.55
Strictly Folded	.43	@	.48
No. 1 Mixed Paper	.25	@	.30

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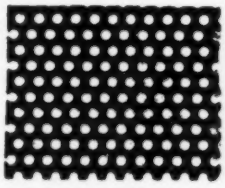

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Flaxseed Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.08¼	@	.10¾
Fine Tube Rope—			
4-ply	.12¼	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¼	@	.14¾
Paper Makers Twine Balls	.09¼	@	.11½
Box Twine, 2-3 ply	.11¼	@	.12¾
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.15¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¾
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¾	@	.06¾
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.55	@	.60
Solid Books	.45	@	.50
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.40
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.45	@	.50
Mixed Papers—			
No. 1	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¼
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.51
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.40	@	1.45
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.20	@	1.25
Writing Paper	.65	@	.70
No. 1 Books, heavy	.55	@	.60
No. 2 Books, light	.40	@	.45
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.60	@	.65
Print Manila	.40	@	.45
Container Manila	.40	@	.45
Old Kraft	.80	@	.85
Common Paper	.22½	@	.25
No. 1 Mixed Paper	.20	@	.30
Straw Board, Chip	.20	@	.30
Binders Board Chip	.20	@	.30
Corrugated Board	.35	@	.40
Overissue News	.50	@	.60
Old Newspaper	.40	@	.45

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05¾	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	.02¾	@	—
(F. o. b. Boston)			
Southern Kraft	.02¾	@	—
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	32.50	@	—
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	37.50
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.25	@	1.40
No. 1 Old Manila	.50	@	.60
No. 1 Mixed	.60	@	.70
No. 2 Mixed	.40	@	.50
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Sutchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.60
White Blank News	.85	@	.90
No. 1 Kraft	—	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.17½	@	.22½
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.32½	@	.37½
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.25	@	.30
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.00	@	—
Domestic	—	@	.00
Manila Rope—			
Foreign	—	@	1.40
Domestic	—	@	1.00
Transmission Rope	—	@	.90
Mixed Strings	.25	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.50	@	.62½
No. 1 Scrap Burlap	.65	@	.75
Scrap Sisal	.80	@	—
Scrap Sisal for shredding	—	@	.90
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	1.75	@	2.00
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.30	@	.35
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.75	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	—	@	.03½
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.02
New Black Silesias	.02½	@	.02½
New Unbleached	—	@	.04½
Fancy	—	@	.02½
Washable	—	@	.01½
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	1.50	@	1.75
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.40	@	.45
No. 2	.35	@	.40
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.09¾	@	—
No. 2 Sulphite	.07½	@	—
No. 1 Colored	.09¼	@	—
No. 2 Colored	.08½	@	.10½
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	10.00	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.00	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Fancy Shirt Cuttings	.02¼	@	.02½
Kraft	1.25	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.04¼	@	.04¾

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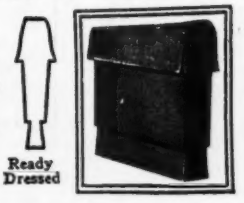
LABOR SAVING—TIME SAVING

THE MOST ECONOMICAL FILLING THAT CAN BE PUT IN A MORTISE WHEEL



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"YOUR PAPER IS MADE IN YOUR BEATERS"

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are good wires

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Pulp and Paper Mill Purpose
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BAGGING — ROPE
JUTE BUTTS, MAGAZINES, CATALOGS
OLD PAPERS, THREAD WASTE AND
ALL GRADES OF RAGS
CUT QUICKLY AND EFFICIENTLY
WITH THE

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GIANT
REG. U.S. PAT. OFF.
RIEGELSVILLE, N.J. U.S.A.

This is the GIANT 2A CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR
GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

THE STANDARD OF THE WORLD FOR 60 YEARS
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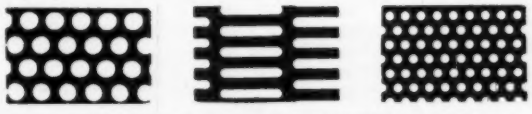

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EXCELLENCE OF PRODUCT LOW PRICES

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HELP WANTED

IF YOU are open to overtures for new connections and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements, your identity covered and present position protected. Established twenty-three years. Send only name and address for details. R. W. Bixby, Inc., 117 Delward Bldg., Buffalo, New York.

WANTED—Salesman to handle side line sold to coarse paper jobbers in Canada. Commission basis. Address Box 33-148, care Paper Trade Journal. A-13

WANTED—Paper Mill Superintendent—of extensive experience—competent to handle entire mill in absence of owner—state experience fully. Address Box 33-147, care Paper Trade Journal. A-20

WANTED—Sales representative for Philadelphia and Baltimore district. Established business. Must have following with jobbers and convertors. Fine paper line. Address Box 33-152, care Paper Trade Journal. A-20

SITUATIONS WANTED

GROUNDWOOD SUPERINTENDENT—Technical and broad practical experience. Thorough knowledge modernizing, maintaining and operating efficiently. Quality production mechanical pulp mills. A man of outstanding ability. Address Box 33-124, care Paper Trade Journal. M-4

SUPERINTENDENT now employed wishes new connection. Many years experience on Tissue, plain and oiled Crepe products, Facial Tissue and Cellulose Wadding. Experience on Fourdrinier, Yankee and Cylinder Machines. What have you to offer? Address Box 33-151, care Paper Trade Journal. A-13

BOSS FINISHER on Tissue and light weight available. 15 years experience. Fully familiar with Cutters and Brennan Folders. A-1 References. Address Box 33-141, care Paper Trade Journal. A-20

MACHINE TENDER. High speed man. News, Kraft, Fourdrinier Board. 34 years of age. Address Box 33-143, care Paper Trade Journal. A-13

BOOK and Bond Superintendent available at once. 40 years old. Married. Many years experience on specialties. Good on colors. Can furnish the best of references. Address Box 33-144, care Paper Trade Journal. A-13

SALESMAN—Experienced mill representative desires position with Paper Manufacturer. American. Single. 38 years of age; willing to travel. Prefers headquarters N. Y. Unquestionable references. Address Box 33-161 care Paper Trade Journal. M-5

AM offering the services of my ability and experience to Pulp and Paper Mills requiring a competent and successful Manager, Consultant or Superintendent, permanent or temporary, at a moderate salary. Results guaranteed in all Specialties and Standard Products Address Box 33-162, care Paper Trade Journal. A-27

SITUATIONS WANTED

SUCCESSFUL SUPERINTENDENT of folding and set-up boxboard mill, wishes new connection. Capable and has thorough knowledge of all mill operations. Unquestionable references. Address Box 33-87, care Paper Trade Journal. A-27

CHEMICAL ENGINEER—Graduate. Married. Five years experience testing and laboratory work in large paper mill. Prefer technical control or research work. Available immediately. Address Box 33-130, care Paper Trade Journal. A-13

COLORMAN or Beater Engineer wishes to make a change. Experience on most all grades specialties of all kinds. Sober and steady. Address Box 33-135, care Paper Trade Journal. A-13

MILL Superintendent; operating full line of water finish specialties, also waxing, sulphite bond, ledger, writing, envelope, tablet, label, mimeograph and magazine quality papers, no fuzz or curl. Through adequate mill control would assure of a reasonable high fiber yield. Finishing room ability. Address Box 33-136, care Paper Trade Journal. A-20

COLOR EXPERT on Fancy Paper, Coated Paper, Boxboard with practical experience. Many years executive of large plant. Address Box 33-146, care Paper Trade Journal. A-20

TOUR BOSS—On all grades of boards and specialties. Capable and have thorough knowledge of all mill operations. Best references. Address Box 33-163, care Paper Trade Journal. A-20

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 2-4370. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running machines. tf

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PAPER TRADE JOURNAL
15 West 47th St.
New York, N. Y.

SITUATIONS WANTED

MANUFACTURERS—Salesman offers intelligent, intensive representation. Boston and New England. Wide experience coarse papers specialties. Some knowledge printing. Acquainted Jobbers, Convertors. Address Box 33-153, care Paper Trade Journal. A-13

SODA Pulp Mill Superintendent or assistant desires position. Ten years' experience in large mill. Address Box 33-142, care Paper Trade Journal. A-20

BEATER ENGINEER—COLORMAN with knowledge of chemistry and technical control. Seven years experience making news, hanging, roto, bank and wrapping specialties. Now employed. Address Box 33-145, care Paper Trade Journal. A-20

FOURDRINIER or Cylinder Machine Tender, eighteen years experience, all grades paper light and heavy weight. Married. Steady. Best references. Address Box 33-150, care Paper Trade Journal. A-13

WANTED

WANTED—1 Cylinder Mould—36 x 94" or 96"; 1 Couch Roll—17 to 20" Diameter 94" or 96"; 1 Light Top Press Roll or Couch—16 to 20" Diameter, 88". Address Box 33-128, care Paper Trade Journal. A-13

WANTED—Waxing machine to wax 50" wide rolls. State age, maker, condition and send photo or blue print, also price. Address Box 33-157, care Paper Trade Journal. A-20

WANTED—Used Rewinder and Slitter 99" to 104" drum width, also 120" to 126". Send full details to Box 33-158, care Paper Trade Journal. A-27

WANTED—Good Used 60 or 62 Inch Face Super Calender Stack. Address Box 33-159, care Paper Trade Journal. A-13

FOR SALE

PAPER COATING MACHINERY—Waxing, Oiling, Gumming, Gluing, Asphalt Duplexing Laboratory Coating and Treating machines. High speed. New improvement. MAYER COATING MACHINES COMPANY, INC., Rochester, N. Y. T F

THREE or four good slitting and rewinding machines—will accommodate jumbo rolls up to 42" wide and slit perfect rolls as narrow as ½" wide. If interested address Box 33-125, care Paper Trade Journal. tf

FOR SALE—72" Rogers Wet Machine. Excellent condition. Address Box 33-160, care Paper Trade Journal. A-20

Classified Advertising costs little but brings large returns.

FOR SALE

NEW CYLINDER PAPER MACHINE FOR SALE

Molds 36" x 91". 4 Baby Presses. 1 Primary Press. 3 Main Presses with rolls 20" x 93". 32 Dryers 48" x 88". 2 stacks of calenders. Duplex Cutter. M-30

FRANK H. DAVIS COMPANY
175 Richdale Avenue, Cambridge, Mass.

GOVERNMENT BIDS

TREASURY DEPARTMENT, Office of the Secretary, Washington, April 8, 1933.—Sealed proposals will be received by the Secretary of the Treasury until 10 o'clock a.m., April 27, 1933, from manufacturers of bond, bank-note and other fine papers, for furnishing distinctive paper required for the printing of United States currency and public debt securities, national bank notes, Federal reserve notes, etc., during the fiscal year beginning July 1, 1933. Specifications and full information will be furnished manufacturers upon application to the Commissioner of the Public Debt, Treasury Department. W. H. WOODIN, Secretary of the Treasury. A-13

Rent vs. Interest

Are you paying rent for machinery, now in your plant that has become obsolete on account of your newer equipment?

Draw interest on your idle machinery—Stop paying rent.

It's good business to sell it to some one who can use it and the best way we know of is to adver tise it here.

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15 W. 47th St., New York, N. Y.

Many Times Some Little Classified Advertisement Placed in These Columns Brings Very Satisfactory Results

EVERY WEEK—

The Paper Trade Journal publishes the happenings of interest in the Pulp and Paper Industry—Covers it completely is saying it a little clearer.

To reach buyers in this field, advertising in these columns can carry your message to many that are interested in your products.

As a member of the Audit Bureau of Circulations our circulation claims are not only authentic but provable.

The Paper Trade Journal
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All that the Name Implies

"THEY LIE ABSOLUTELY FLAT"

ASK FOR SAMPLE BOOK
WITH COMPLETE DATA AND PRICES

PAPER MANUFACTURERS CO. INC.
PHILADELPHIA, PA.

Your Card in This Space Will Bring Results

Perforated Metal Screens
for every purpose

also elevator buckets of all kinds; chutes; hoppers; stacks and tanks.

MITCO Products — Interlocked Steel Grating; Shur-Site Stair Treads. Armorgrids.

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50 Dundaff St., Carbondale, Pa.
Offices in Principal Cities

Appleton

Felts and Jackets

Appleton Woolen Mills, Appleton, Wisconsin

Classified Index To Advertisers

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Norton Co.

ACID FITTINGS (Bronze)
The Duriron Co.
Murray, D. J. Mfg. Co.

ACID PUMPS
De Laval Steam Turbine Co.
The Duriron Co.

ACID SYSTEMS
The Duriron Co.
Jenssen Company, G. D.

ADDING MACHINE ROLLS
Paper Manufacturers Co., Inc.

AGALITE
Union Talc Co.

AGITATOR EQUIPMENT
The Duriron Co.
Valley Iron Works.

AGITATORS
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Moore & White Co.
Valley Iron Works Co.

AIR DRYING MACHINERY
Waldron, John, Corp.

AIR PREHEATING UNITS
Ross Engineering Corp., J. O.

ALLOY METALS
Chromium Corporation of America
Michigan Steel Casting Co.

ALLOY STEELS
American Sheet & Tin Plate Co.
The Duriron Co.

ALUM
American Cyanamid & Chemical Corp.
Paper Makers Chemical Corp.
Pennsylvania Salt Mfg. Co.

ALUM DISSOLVING JETS
Duriron Company, Inc.

ALUM DISSOLVING SYSTEM
Duriron Company, Inc.

AMMONIA, Anhydrous
Mathieson Alkali Works Inc.

AMMONIA, Aqua
Mathieson Alkali Works, Inc.

ANALYSIS AND TESTS
Electrical Testing Laboratories.
Little, Inc., Arthur D.

AQUA AMMONIA
American Cyanamid & Chemical Corp.

ARCHITECTS AND ENGINEERS
Ferguson, Hardy S.
Hardy, George F.
Jenssen Company, G. D.
Simons, D. D.
Stebbins Eng. & Mfg. Co.

ARMORING, FLOOR
Hendrick Mfg. Co.

ASBESTINE PULP
International Pulp Co.

ASBESTOS DRYER FELTS
Asten-Hill Mfg. Co.

AUTOMATIC WATER FEEDER
Merritt Engineering & Sales Corp., The

BACKING WIRES
Appleton Wire Works.
International Wire Works

BAG MACHINES
Heinrich Inc., H. H.
Smith & Winchester Mfg. Co.

BALL BEARINGS
S. K. F. Industries
Timken Roller Bearing Co.

BARKERS
Valley Iron Works Co.

BARKING DRUMS
Murray, D. J. Mfg. Co.

BEARINGS
Gatke Corporation.

BEARINGS (Tapered Roller)
Timken Roller Bearing Co.

BEARINGS (Friction, Anti-Friction, Ball and Thrust)
Montague Machine Works.

BEARINGS (Thrust)
Gatke Corporation.
S. K. F. Industries
Timken Roller Bearing Co.

BEARINGS (Water and Graphite Lubricate)
Gatke Corporation.

BEARINGS, ROLLER
S. K. F. Industries
Timken Roller Bearing Co.

BEATING ENGINES
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Jones & Sons Co., E. D.
Valley Iron Works Co.

BEATER BED PLATES
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Taylor, Stiles & Co.
Valley Iron Works Co.

BEATER ENGINE BARS
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Taylor, Stiles & Co.
Valley Iron Works Co.

BEATER HOODS
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.

BEATER ROLLS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.

BEATER STOCK RECORDER
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Goodrich Rubber Co.
Goodyear Tire & Rubber Co.

BINOCULAR MICROSCOPES
Bausch & Lomb Optical Co.

BITUMINOUS PRODUCTS
Sleight Bituminous Products Co.

BLEACH EJECTORS
Perkins & Sons, Inc., B. F.

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Moore & White Co.

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Mathieson Alkali Works, Inc.

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Lobdell Car Wheel Co.
Perkins & Son. Inc. B. F.
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Waldron Corp., John

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Hardy, Geo. F.
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John Waldron Corp.

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Ross Engineering Corp., J. O.
The Duriron Co.

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Moore & White Co.
Valley Iron Works Co.
Smith & Winchester Mfg. Co.

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Ross Engineering Corp., J. O.

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Draper Bros. Co.
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Waterbury Felt Co.

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Inversand Company
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Norton Co.

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International Wire Works

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FRICTION CLUTCHES
Beloit Iron Works
Moore & White Co.

FUME DUCT (Acid Resistant)
The Duriron Co.

GEARS
Farrel-Birmingham Co.
De Laval Steam Turbine Co
E. D. Jones & Sons Co.
John Waldron Corp.

GEARS (Fibre)
Gatke Corporation

GEARS (Machine Cut)
Farrel-Birmingham Co.
De Laval Steam Turbine Co
Limited, Charles

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Moore & White Co.

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General Electric Co.

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Downingtown Mfg. Co.
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HAND CLEANER DISPENSERS
Magnus Chemical Co.

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De Laval Steam Turbine Co.

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Cambridge Instrument Co.

HYGROMETERS, PAPER STOCK
Cambridge Instrument Co.

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Electro Bleaching Gas Co.
Mathieson Alkali Works, Inc.

LOFT DRYERS
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John Waldron Corp.

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Socony-Vacuum Corporation

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Bausch & Lomb Optical Co.

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Trimbey Machine Works.

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Bausch & Lomb Optical Co.

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Bausch & Lomb Optical Co.

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General Electric Co.

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Paper Converting Machine Co., Inc.
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NAPKIN DISPENSERS
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New Jersey Zinc Co.

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B. F. Goodrich Rubber Co.

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Farrel-Birmingham Co.

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Downingtown Iron Works

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The Duriron Co.

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TOWEL INTERFOLDING MACHINES
Dietz Machine Works

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De Laval Steam Turbine Co

TURBINES (Hydraulic)
De Laval Steam Turbine Co.
Terry Steam Turbine Co.

TURBINES (Water)
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Terry Steam Turbine Co.

TURBO-GENERATORS
De Laval Steam Turbine Co.
Terry Steam Turbine Co.

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Paper & Textile Machy. Co

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DeZurick Shower Co.
E. D. Jones & Sons Co.
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